"AN OPEN CLINICAL STUDY ON SOOLI KANAM (CHILDHOOD BRONCHIAL ASTHMA) IN CHILDREN WITH THE EVALUATION OF SIDDHA TRIAL DRUG ATHIMADHURA CHOORANAM"

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CERTIFICATE

This is to certify that the dissertation entitled **"AN OPEN CLINICAL STUDY ON SOOLI KANAM (CHILDHOOD BRONCHIAL ASTHMA)** is a bonafide work done by **Dr. P.CHAKRAVARTHI**, Government Siddha Medical College, Chennai – 600 106 in partial fulfillment of the University rules and regulations for award of **SIDDHA MARUTHUVA PERARIGNAR** under my guidance and supervision during the academic year 2014 – 2017.

Name & Signature of the Guide

Name & Signature of the Head of Department

Name & Signature of the Dean/ Principal

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INTRODUCTION

Siddha system of medicine is the most pristine traditional medical system. The system was established about more than 5000 years back by the eminent powers called Siddhars and hence the name is Siddha medicine. Siddha system of medicine has grown with culture background and lifestyle of Dravidans.

Siddham means “ARIVU” (or) “COMPLETE KNOWLEDGE”.

The usage of traditional Siddha medicines for various ailments is increasing worldwide. As per the WHO more than 80 percentage of the world population currently use herbs and other form of traditional medicines to treat their diseases.

In Siddha system, the paediatric medicine known as Kuzhanthai maruthuvam (or) Balavagadam, in whichdiseases are classified according to the age groups.

In Balavagadam, diseases are mainly classified on two factors.

1. Aga karana noigal
2. Purakarana noigal

According to Siddha system human body is comprised of 96 thathuvangal (principles), 72000 naadi narambugal (nerves and blood vessels), 7 udal thathukal, 3 uyir thathukal. Imbalance in any of these constituents lead to Rogam (diseases)

“Kabathinai andri kasa swasam kanathu”

The above siddha verse quoted by Theran, means the Bronchial asthma (Sooli kanam) occurs due to alteration (or) defection inkaba kutram.

Asthma is a Greek word which means ‘Shortness of breath, a panting’

Asthma is a chronic reversible inflammatory disease of the airways characterised by recurrent paroxysmal attacks of dyspnoeachiefly expiratory in nature accompanied by wheeze which may subside spontaneously or with treatment.[1]

In siddha system of medicine Bronchial Asthma is compared with Iraippu in the case of adults. In the case of children, it is compared with Sooli Kanam, which is one of the 24 types of Kanam, mentioned in Balavagadam.

The prevalence of Bronchial Asthma has increased continuously since the 1970s, and now affects an estimated 4 to 7% of the people worldwide. In India the overall mean prevalence was found to be 2.74. The study done in urban and rural children in Tamil Nadu in the age group of (6 – 12) years showed prevalence of wheeze 18%.

Rapid urbanization of our country and increasing number of vehicles leads to air pollution, which is one of the main factors responsible for Childhood Bronchial Asthma. Moreover, children are more susceptible to respiratory disorders due to various factors like poor immunity, low lung recoil, floppy chest wall weak respiratory muscles. If untreated affected children are continued to be lived with this disease for life long. As children are the futures of tomorrow, they must get rid of the major socio economic disease, Bronchial Asthma and as a doctor, we have responsibility for this. Though modern treatment like inhalers gives temporary relief, permanent cure can be achieved through traditional Siddha system of medicine without any side effects and cost effective manner. According to the verse *"Ver Paru Thazhai Paaru Minjinakkal Mella Mella Parpa Chendhooram Paru"* I chose Athimathura chooranam, a herbal formulation for the management of Kanam (Chilhood Bronchial Asthma) as my dissertation topic.

AIM & OBJECTIVES

AIM:

The aim of the study is select the cases of **SOOLI KANAM (Childhood Bronchial asthma)** patients to administrate them with the trial drugs as per the line of treatment and analysis both clinically and experimentally to prove the safety and efficacy of**"ATHIMADHURA CHOORANAM"** for the treatment of **SOOLI KANAM (Childhood Bronchial asthma)**

OBJECTIVES:

PRIMARY OBJECTIVE:

To study the therapeutic efficacy of the medicine **"ATHIMADHURA CHOORANAM**" in the treatment **of SOOLI KANAM (Childhood Bronchial asthma)**

SECONDARY OBJECTIVE:

The main objective of the present study is to create the knowledge about the Siddha system and to highlight the efficacy of Siddha drugs among the people.

To explore the etiology, clinical features, diagnosis and investigation of sooli kanam through various Siddha literature

To collect and review the ideas mentioned in the primordial Siddha literature about the disease Sooli kanam

To make the comparative study of the Siddha and Modern aspects of the disease

To study the pre –clinical analytical standardization and safety study in the experimental formulation of the **Athimadhura chooranam.**

To evaluate the pharmacological study of the trial drug

To educate the parents and children who were affected by the disease and how to stabilize their health through natural way like pranayamam, diet modification and personal hygiene

To conduct the clinical trial to find out the efficacy of **Athimadhura chooranam,** To have a detailed analysis of the disease **Sooli kanam(Childhood Bronchial Athma)** through efficacy of the drug.

REVIEW OF LITERATURE

SIDDHA ASPECT

இயல்: (DEFINITION)

கணம் என்பது கர்ப்பச்சூடு எனக் கூறுவர்.மாந்தத்தின் தொடர் நோயே கணமாகும்.இது குழவிக்கு, மாந்த நோய் ஏற்பட்டு முழுவதும் குணமாகாமல் உடலில் இருந்தே முற்றி வரும். குழந்தைகள் பாலும் குடித்து சோறும் உண்ணும் பருவத்தில் உண்டாகும் நோயாகும்.இது குழந்தைகளது மூன்றாமாண்டு முதல் ஏழாமாண்டு வரை துன்பத்தைக் கொடுக்கும் நோயாகும்.

நோய் வரும் வழி (ETIOLOGY)

குழந்தை மருத்துவம் (பால வாகடம்) நூல் கணம் தோன்றுவதற்கான வழிகளை பின்வருமாறு கூறுகிறது.

“ஐயது கூடிற் றென்றால் அரிவையர் துயரந் தன்னால்

செய்யாற் புனலருத்திச் செறிசல தோடந் தன்னால்

பையர வல்கு லாளும் பசியுட நிருந்த தாலும்

துய்யதோர் குழவி கட்குக் கனங்களுந் தோன்று மன்றே”.

- குழந்தை மருத்துவம்

பொருள்:

1. **ஐயமானது தன்னளவில் இருந்து கூடுவதாலும்**
2. **அரிவையர்க்கு (அரிவையர் என்பது பெண்களின் பருவங்களில் ஒன்றாகும்).**
3. **பல்வேறு வகைப்பட்ட நீரினை பருகுவதால் உண்டாகும் சலதோடத்தாலும்.**

4. **பசியுடன் இருக்கும் தாயின் பாலை உண்பதாலும் குழந்தைகளுக்கு கணநோய் தோன்றும்.**

ii) **பிறுநூல்களில் கூறப்பட்டுள்ள நோய்வரும் வழி:**

கும்பமுனி பாலவாகடம் என்னும் ஏட்டில் கணத்தின் நோய் வரும் வழி பற்றி பின்வருமாறு கூறுகிறது.

"'தரணிதனிலேயுறு சேயருடலுதனிலே வரு கணைரோக வரலாறு கேள்

கனிவுபெறு கெற்பமில் ரெணமது சூடினால் போகமது மிகு சூடினால்
விரவினுடனே பல தோசமதினாலினி தாயினுட பால் வேவினால்

விள்ளு பல விசமதால் தீயினுட காங்கையாய் இளவெயிலு

கொள்ளலாலும்

உரயுமாகாரமது குறையுமதினாலினி உண்ணு பால் பேதமதினால்

உறமாகவே கடும் சூடுடனே உண்ணலால் புளித்த வகை உண்ணலாலும்
புரைமேவும் அதிக பெரும் காரவகை தின்பதால் அத்தியது சூடு மிஞ்சி

புகழுரிய மாமிசம் கருகியது ரெணமே வற்றியதுவே யெழும்பும்"

- கும்பமுனி பாலவாகடம் பாடல்எண்-451 (ப.எண்:113).

கர்ப்பம் தரித்திருக்கும் சமயத்தில் புண் ஏற்படுவதாலும், உணவு மிகுதியாக உட்கொள்வதாலும், தாய்க்கு ஏற்படும் தோசங்களாலும், தாய்பால் இறுகி கடினப்பட்டு கொள்வதாலும், தாய்க்கு பல விடங்கள் ஏற்படுவதாலும், உடல் சூட்டினாலும், வெயிலில் திரிவதாலும், உணவு குறைவாக உட்கொள்வதாலும், உட்கொள்ளும் பாலில் ஏற்படும் பேதத்தினாலும், மிக சூடான உணவை உட்கொள்வதாலும் புளித்த உணவு வகைகளை உண்ணலாலும், காரவகை உணவுகளை மிகுதியாக

கொள்வதாலும், கர்ப்பையின் சூடு மிகுதியாகி கர்ப்பத்தில் உள்ள மகவின் உடல் மெலிந்து கணம் தோன்றும்.

திருவள்ளுவ நாயனார் இயற்றிய நவரத்தின் சிந்தாமணி-800 என்னும் நூலில் பின்வருமாறு கூறப்படுகிறது.

“பாரான கெற்பவெட்டை மீரும் பக்குவத்தில்

வேரான் விந்து வெளி பட்டு யோளி விழுந்த தென்றாற்

காரான பிண்டங் கனலிலடி பட்டுக் காந்தியினாற்

கூராய் கனசுர மெய்து மென்றேயான் கூறினேமே”.

- நவரத்தின் சிந்தாமணி-800

பொருள்:

கெற்பவெட்டை மீறியிருக்கும் நேரத்தில் கருவுற்றிருக்கும் தாயுடன் தந்தை சேர்வதால் கருவானது (பிண்டமானது) கனலில் அடிபட்டு கணம் வருகிறது.

“தன்வந்திரி வைத்தியம்” என்னும் நூலில் பின்வருமாறு கூறப்படுகிறது.

“சீரிய தொன்மை செய்த தீவினை தந்தையாகப்

பாரிலிப் பிறப்பிற் செய்த பாவமே தாயதாகப்

பேரிய சயக் குமரன் விறந்திலா கிறமத்தப்பே

காரிய செவிலித் தாயாய் கணம் பெற வளரும் நாளில்”

- தன்வந்திரி வைத்தியம்

பொருள்:

முற்பிறவியில் செய்த தீவினைகள் தந்தையாகவும் இப்பிறவியில் செய்த தீவினைகள் தாயாகவும் கொண்டு குமாரனாகிய கணம் தோன்றுகிறது.

“சரபேந்திர வைத்திய முறைகள்” கர்ப்பிணி பாலரோக சிகிச்சை பின்வருமாறு கூறுகிறது.

“தோன்றுமய்ய பதார்த்தந் தோயப்பகை
யூன்று தாகம் பசிமிகுந் துற்றிடில்
ஏன்ற துன்பமெல்லாம் வந்து சூழ்தலால்
ஆன்ற சேய்க்குக் கனங்களுமாகுமே”.

- சரபேந்திர வைத்திய முறைகள் கர்ப்பிணி பாலரோக சிகிச்சை (ப.எண்:57)

பொருள்:

மிகுதியாகக் கபத்தை விருத்தி செய்யக்கூடிய பதார்த்தங்களை சாப்பிடுவதினாலும் பசியும் அதிகமாக இருக்கையில் தண்ணீர் அருந்துவதினாலும் பற்பல கணரோகங்கள் குழந்தைகளுக்கு உண்டாகும்.

நோய் தோன்றும் வயது:

கணம் தோன்றும் வயது பற்றி பல்வேறு கருத்துகள் உள்ளன.கணம் குழந்தைகள் பாலும் குடித்து சோறும் உண்ணும் பருவத்தில் வரும் நோயாகும். இது குழந்தையின் மூன்றாமாண்டு முதல் ஏழாமாண்டு வரை வரும் நோய் என்பதை,

“என்னவே கணா மூன்று வருடந் தொட்டே
ஏழாண்டு மட்டுக்கு மிருக்குங்காலம்”

-பாலவாகடம்.

-என்னும் செய்யுள் வரிகளால் அறியலாம்.

இதை தவிர,

பரராச சேகரம் எனும் நூலில் பாலரோக நிதான படலத்தில் கணம் குழந்தைகளின் 12 வயது வரையிலும் காணும் நோய் என கூறுகிறது. அதாவது

"என்ற தோர் க்ணை கடாமுமிப்படி யெழுந்து பொங்கி

நின்ற பேர் பதினெட்டு தானிறைந்திரு மாண்டின் மேலாய்க்

கன்றிய பாலர் மெய்யிற் பன்னிரண்டாண்டு காறும்

நின்றிடு மென்று முண்ணாணிகழ்த்தினன் முனிவனன்றே".

- பரராச சேகரம் (பாலரோக நிதானம்).

பாலவாகடம் நூலில் கீழ்காணுமாறு கூறப்படுகிறது.

"மலமுஞ் சலமு மிகத் தீய்ந்து மார்பிலதிக சுரங்காயும்

மலமும் வயிறு மிக வெரியும் வளமாய் தலையு மிக மயக்கும்

சலமும் வரள் தீ தான் குறையும் சண்டாளம் போலுட் சுரமாம்

தலமே பன்னிரண்டாண்டு மட்டும் தனதாய் வருங் குணமிதுவே".

-பாலவாகடம்.

எனவே, கணமானது குழந்தை பிறந்தது முதல் 12 ஆண்டு வரை தோன்றும் நோய் எனவும் கொள்ளலாம்.

கர்ப்பச் சூடு: (3 முதல் 7 வயது வரை)

"தொகையான் கணங்கள் எல்லாம் கர்ப்பாச்சூடு".

- அயோத்திதாசர்
பாலவாகடம்.

கர்ப்பச்சூடு என்பதில் சூடு என்பது அழல் தாதுவை குறிப்பதாகும்.அகத்தியர் வல்லாதி நாடி நூலில் கருவை காப்பதில் அழல் தாதுவின் முக்கியத்துவத்தைப்பற்றி கீழ்கண்டவாறு கூறப்படுகிறது.

“பாண்மை என்ற விந்தங்கே ஊறும் போது

பாயுமப்பா வ்ன்னியோடு வாயுந் தானே”

-அகத்தியர் வல்லாதி நாடி நூல்

விந்து சுரோணிதத்தோடு சேர்த்து கருவுறுத்லுக்கு துணை புரிவது வாயு (வாதம்) ஆகும்.அவ்வாறு உற்பத்தியான கருவை காத்து வளர செய்வது அழல் தாதுவாகும்.

“வன்னியும் வாயுவு மாயிருந் சுக்கிலாம்”.

-திருமந்திரம்.

நோய் ஏற்பட காரணங்கள்:

அழல் தாதுவும் வளிதாதுவும் சுக்கிலத்துடன் சேர்ந்தேஇருக்கும் என

திருமந்திரம் நூலில் கூறப்படுகிறது.

இவ்விரு நூல்களின் கூற்றுபடி சுக்கிலத்துடன் அழல் தாது உள்ளது என அறியலாம்.இவ்வாறு சுக்கிலத்துடன் கூடிய அழல் தாது தன்னளவில் மிகுதிபடுவதால் சுக்கிலத்தில் விகற்பம் ஏற்பட்டு கருவின் அழல் தாது மாறுபடுகிறது.இதனால் கருவிற்கு சூடு அதிகமாகிறது.இதனையே “கர்ப்பச்சூடு” எனக் கொள்ளலாம்.

மாந்தத்தின் தொடர் நோயே கணமாகும்:

மாந்த நோய் ஏற்பட்டு முழுவதும் குணமாகாமல் உடலில் இருந்தே முற்றிவரும்.

மந்தம் என்பது உருவ நிலையில் உடல்நிலையில் மந்தம், அதாவது தாயின் உணவு பழக்கங்களால் குற்றங்கள் கேடடையும் போது குழந்தைகளுக்கு தோன்றும் கோளாறுகள் மாந்த நோய் ஆகும்.

மாந்தம் தொடந்து நிலைப்பாதால்,

உணவின் சாரம் உடற்கட்டுகளுக்கு சேர்வதில் தடைகள் ஏற்படுகிறது.

சாரம் செந்நீராக் மாறும் தன்மை பாதிக்கப்படுகிறது.

மற்ற உடற்கட்டுகள் போடணிக்கப்படிவதில் பாதிப்பு

உடற்கட்டுகளின் வன்மை குறைகிறது.

கணத்தின் குறிகுணங்கள் தோன்றுகிறது.

வயதினை பொறுத்து:

கணம் தோன்றும் வயதுப்பற்றி பின்வரும் வரிகளுக்கு அறியலாம்,

“என்னவே கணமூன்று வருடந் தொட்டே

ஏழாண்டு மட்டுக்கு மிருக்குங்காலம்”

-பாலவாகடம்

என்ற பாடலினால் மூன்று ஆண்டு முதல் ஏழு ஆண்டு வரை வரும் நோய் என்பதை அறியலாம்

கணத்தின் வகைகள்:

பல நூல்களில் பலவகைகளில் கணம் வகைப்படுத்தப்பட்டு இருக்கிறது

1. பாலவாகடம் நூலில் 24 வகையாட கூறப்படுகிறது.

“கணங்கட்பேர் விரித்தறையக் கேள்நண் றாகக்
கனவாத் கணம்பித்த கனங் குளிர்ந்த
மணமான் சேத்மகணம் பிள்ளை கட்கு

மாந்தகணம் அதிற்பிரிவு ஐந்தாம் இப்பால்
துணமாநீர்க் கணம்பிரளிக் கணமு நல்ல
சூலிகணஞ் சுழிகண மகா கணந்தான்
குணமான ஊதுகணம் வரட்கணந்தான்'
கொதிப்புகணம் வீக்ககணம் இன்னங் கேளே
கேளே நீ பிறக்கணமும் அந்த கன்தன்
கணமும்மந் தாரகணம் எரிக ணந்தான்
முளேநீ ராமகணம் ஆமகண மெத்த
முக்குகணம் மூலகணம் பேரா மத்தின்
வாளேசிங் கியோடிரத்த கணமாம் எல்லாம்
வருத்துரைத்த திருப:்து நாங்கு மாகக்
கோளேது இவைதானே மருத்து நூலின்
குறிப்பறிந்தார்க் கல்லாமல் மற்றோர்க் கேதே"

-பாலவாகடம்

1. வளி கணம்
2. அழல் கணம்
3. ஐய கணம்
4. மாந்த கணம்
5. நீர்க் கணம்
6. பிரளிக் கணம்
7. சூலி கணம்
8. சுழி கணம்
9. மகா கணம்
10. ஊது கணம்
11. வரள் கணம்
12. கொதிப்பு கணம்
13. வீக்கக் கணம்
14. பிறக் கணம்
15. அந்தகக் கணம்
16. மந்தார கணம்
17. எரி கணம்
18. நீராம கணம்
19. ஆம கணம்
20. முக்கு கணம்
21. மூல கணம்
22. பேராம கணம்
23. ரத்த கணம்
24. சிங்கி மாந்த கணம்

2. அயோத்திதாசர் பாலவாகடம் நூலில் 24 வகையாக கூறப்படுகிறது.

அவைகள்:

1. வளி கணம்
2. அழற் கணம்
3. ஐய கணம்
4. மாந்த கணம்
5. நீர்க் கணம்
6. பிரளி கணம்
7. சூலி கணம்
8. சுழி கணம்
9. மகா கணம்
10. ஊது கணம்
11. வரள் கணம்
12. கொதிப்பு கணம்
13. வீக்க கணம்
14. பிறக் கணம்
15. அந்தக் கணம்
16. மந்தார கணம்
17. எரி கணம்
18. நீராம கணம்
19. ஆம கணம்
20. முக்கு கணம்
21. மூல கணம்
22. பேராம கணம்
23. ரத்த கணம்
24. சிங்கி மாந்த கணம்

3. ஆவியளிக்கும் அமுத முறைச் சுருக்கம்- எனும் நூல் 23 வகையாக கூறுகிறது.

அவைகள்:

1. வாத கணம்
2. பித்த கணம்
3. சிலேத்தும கணம்
4. மாந்த கணம்
5. நீர்க் கணம்
6. பிரளி கணம்
7. சூலைக் கணம்
8. சுழி கணம்
9. மகா கணம்
13. வீக்க கணம்
14. பிறக் கணம்
15. ஆமக் கணம்
16. வறட்சி கணம்
17. முக்கு கணம்
18. போர்க் கணம்
19. இரத்த கணம்
20. நச்சு மாந்த கணம்
21. ஊது மாந்த கணம்

10. ஊது கணம்
11. வறட்சி கணம்
12. கொதிப்பு கணம்
22. எரி கணம்
23. மந்தார கணம்

“தானான தேரை கணம் முக்கு கணாந்தான்
தனியான மூல கணம் போர் கணந்தான்
ஊணான் ரத்த கணம் விடா மாந்த கணமும்
ஊது மாந்தக் கணமாம் மாந்த கணந்தானும்
கோனான மந்தார கணமுந் தானும்
கூரான எரிகணமா மிருபத்து மூன்றும்
பானான கணங்கள் பன்னிரண்டு மட்டும்
பாலகர்க்கு நேருமென்று பகர்ந்ததாமே”.

- ஆவியளிக்கும் அமுத முறைச் சுருக்கம்

4. ஆத்ம ரட்சாமிர்தம் எனும் வைத்திய சார சங்கிரம் என்னும் நூலில் பின்வருமாறு கூறப்படுகிறது.

“பாரப்பா கணவகுப்பு பதினெட்டாகும்
பாடினார் வாதகணம் பித்தகணமோடு
நேரப்பா சேத்மகணம் மாந்தகணமின்னம்
நீர்க்கணஞ் சூலைக்கணம் பிரளிகணந்தான்
சாரப்பா ஊதுகணம் சுழிகணந்தான்
சார்வான மாகணமும் வரட்கணந்தான்
கூரப்பா கொதிப்புகணம் பிறக்கணந்தான்
குறிப்பறிவாயையைந்து கணமுமாமே”

- ஆத்மரட்சாமிர்தம்.

மாந்த முதிர்ந்து,

1. வாத கணம்
2. பித்த கணம்
14. வீக்க கணம்
15. ஆமக் கணம்

3. சேத்ம கணம்
4. மாந்த கணம்
5. நீர்க் கணம்
6. சூலைக் கணம்
7. பிரளிக் கணம்
8. ஊது கணம்
9. சுழி கணம்
10. மா கணம்
11. வரட் கணம்
12. கொதிப்பு கணம்
13. பிறக் கணம்
16. தேரைக் கணம்
17. முக்கு கணம்
18. மூலக் கணம்
19. போர்க் கணம்
20. இரத்தக் கணம்
21. விமாந்த கணம்
22. ஊது மாந்த கணம்
23. அந்தக் கணம்
24. மந்தார கணம்
25. எரி கணம்

என கணங்கள் 25 வகைப்படும்

5.பரராச சேகரம் எனும் நூலில் கணத்தின் வகைகள்-18 என்று கூறுகிறது

அதாவது,

"உரமெனுங் கணைகண் முன்னேருரைத்தாவறுரைப்படக் கேண்மின்

சுரமெனுற் கணையுமொன்று துங்குமக் கணையுமொன்று
நிரவிய மூல மிரத்த நீங்கரும் வரட்சி வெப்புக்
கருவுறு மனலன் வீங்கி கூடியதோர் மஞ்ச ணீலன்
நீலமாங் கணாய்யினேடு நின்றிடு வெளுப்பு மாகும்
சாலவே சத்தி மேலுந் தப்பிலா மாந்த மேகம்
மேலதாம் வினைகள் போல மிருந்திடுற் கழிச்சல் காசம்
ஆலமாரிரும வெய்ப்பு மாவிவை பதினெட்டாமே"

- பரராசசேகரம்

1. **வாத கணை**
2. **பித்த கணை**
3. **சுரக் கணை**
4. **அத்திசுர கணை**
5. **வரட் கணை**
6. **வாலசந்திர கணை**
7. **மகேந்திர கணை**
8. **தூக்கு கணை**
9. **அனற் கணை**
10. **வீங்கு கணை**
11. **வெளுப்பு கணை**
12. **சத்தி கணை**
13. **இரத்த கணை**
14. **மூலக் கணை**
15. **கருங் கணை**
16. **மஞ்சட் கணை**
17. **நிலக் கணை**
18. **வெப்பு கணை**

6.**கும்பமுனி பாலவாகடம்** எனும் நூல் கணத்தை 18 வகையாக கூறுகிறது.

"மாது கனிவோடினி கேளும் ரொன்பதில் பேரு வகையானதி நீ

மருவு சுரமோடினி தூங்குகணை ரெத்தமும் வறட்சையோடு வெப்பு கணையும் போதமோடு வீங்கலும் அனல்கணை மாந்தமும் மஞ்சளும் நீலமதுவும்

பொங்கிடும் சர்த்தியோடு ரத்தமும் மேகமுடனே வாலேந்திரன் வாலை சந்திரன் மோதுமினி அத்தியின் சுரக்கனை மகேந்திர உள்ளுரொகம் பெயரிவைகள்

ஈரொன்பதாம்

முறையாகவே யிவை வகைய தொன்று மேலதாய் ஈராறு வயது மட்டும் கோதகலு பாலரை வாதையது செய்யுமெ குணமோடவு சதங்கள்

கூறாகவேயினி மேலாலுரைக்கிறேன் ஒவ்வொன்றும் ஊன்றி அறியே"

- கும்பமுனி பாலவாகடம். பாடல்எண்:452 (ப.எண்:114).

அவைகள்:

1. **சுரக்கணை**
2. **தூங்கு கணை**
3. **மூலரெத்தக் கணை**
4. **வறட்சைக் கணை**
5. **வெப்பு கணை**
10. **நீலக் கணை**
11. **சத்திக் கணை**
12. **ரெத்தக் கணை**
13. **மேகக் கணை**
14. **அத்திச்சுர கணை**

6. அனல் கணை
7. வீங்கு கணை
8. மாந்தக் கணை
9. மஞ்சள் கணை
15. வலேந்திரக் கணை
16. வால சந்திரக் கணை
17. மகேந்திரக் கணை
18.உள்ளூ ரோகக் கணை

7. ஜீவரட்சாமிர்தம் எனும் நூல்-8 வகையாக் கூறுகிறது.

1.சூலி கணம்
2. முக்கு கணம்
3. ஆம கணம்
4. தேரை கணம்
5. மகா கணம்
6. சுழி கணம்
7. கழி கணம்
8. வரள் கணம்

8. பிள்ளைப்பிணி வாகடம் எனும் நூல் 8 வகையாக கூறுகிறது.

1. வரள் கணம்
2. மூல கணம்
3. சீத கணம்
4. இதய கணம்
5. மகா கணம்
6. மலக் கணம்
7. குண்டலிய கணம்
8. நீர் கணம்

9.தன்வந்திரி வைத்தியம் சயரோக நிதானம் என்னும் நூலின் படி 8 வகையாக கூறுப்படுகிறது

அவைகள்:

1 வால சயம்
2. வீர சயம்
3. தருண சயம்
4. கணிக சயம்

10. சரபேந்திர வைத்திய முறைகள் கர்ப்பிணி பாலரோகசிகிச்சை என்னும் நூல் கூறும் வகைகள்

1. நீர்க் கணம்
2. வரட் கணம்
3. எரி கணம்
4. சுழி கணம்
5. மூல கணம்
6. முக்கு கணம்
7. விக் கணம்
8. ஆம கணம்

என கணத்தின் வகைகள் கூறப்பட்டுள்ளன

முக்குற்ற வேறுபாடு:

உணவாதி செயல், அக, புற காரணங்களால் ஏற்படும் சுக்கில சுரோணிததோடங்களின் வேறுபாடுகளாலும் விந்துவுடன் உட்செல்லும் பிராணன், வெளியிலிருந்து காக்கும் அபானன், கருவை வளர்க்கும் உதானன் ஆகிய வாயுக்கள் பாதிப்படைந்து அழல் குற்றம் மிகுதிபட்டு கர்ப்பச்சூடு உண்டாகிறது. மிகுதிபட்ட அழலானது கபத்தின் இருப்பிடமான மார்பு பகுதியை பற்றி கொண்டு கபத்தை வளர்ச்சிபெற செய்து கணத்தின் குறிகுணங்களை உண்டாக்குகிறது

சூலி கணம்:

குழந்தைகளுக்கு உண்டாகும் கணையின் ஒரு வகை சூலி கணம் ஆகும்

சூலிக்கணம்-விளக்கம்: (பாலவாகடம்)

கர்ப்பத்திலேற்பட்ட கணச்சூட்டினால் குழந்தைகளுக்குண்டாம் ஓர் மேல்மூச்சு இதற்கு கர்ப்பக்கணைநோய் என்னும் பெயர்.

சூலிக்கணம்-குறிகுணங்கள்:

“உண்டாஞ் சூலிக் கணங்கேளாய்

உற்ற சுவாச மேலேலு ம்பிபித்

தண்டா இருமல் மிக உண்டாம்

தொண்டை நாவு மேவந்து

சோரும் பொருமி வயிற்றுப்பும்

வண்டார் முலையுங் குடியாது

வடையாய் முகமும் நாறுமன்றே”

-பாலவாகடம், ப.எண்.294

பொருள்:

மேல்முச்சு உண்டாதல்

இருமல் அதிகமாக ஏற்படுதல்

நெஞ்சு, வாய், தொண்டை நாக்கு வெந்து புண்ணாதல்

வயிற்றுப் பொருமல் உண்டாதல்

தாய்ப்பால் உண்ண சிரமம்

முகத்தில் நாற்றமடிக்கும் என்று பலவாகடம் நூலில் கூற்ப்பட்டுள்ளது.

நெஞ்சுவாய் தொண்டை நாவு

நேருறு வெந்து புண்ணாய்

துஞ்சல்தன் முலையுண்ணாது

சுவாசமோ டிரும லுண்டாம்

தஞ்சமாய் வயிறு பொருமித்

தாய்முலை யுண்டோட் டாது

கஞ்சலை முகமும் நாறும்

கணசூலிக் கணமி தாமே”.

“உடலது வெளுத்து நாவும்

உதடுக ளெயிறும் வெந்து

திடமுடன் முலையுண்ணாது

சிவந்துநீ ரெரிந்து வீழும்

அடர்ம லம்பிசின் போலா

தல்லது நுரைத்து வீழ்தல்

படர்சுரம் வயிற்று லுண்டாம்

பகர்கெர்ப்ப கணம தானே”.

பிள்ளைபிணி மருத்துவம், பாகம்-2, ப.எண்-334

பொருள்:

1. **நெஞ்சு, தொண்டை, நா புண்ணாதல்**
2. **தாய்ப்பால் உண்ணாமை**
3. **சுவாசம், இருமல்**
4. **வயிறு பொருமல்**
5. **முகம் நாறுதல்**
6. **உடல் வெளுத்தல்**
7. **உதடு வயிறு புண்ணாதல்**
8. **நீர் எரிச்சல்**
9. **மலச்சிக்கல்**
10. **வயிற்றில் சுரம் காய்தல் என்று பிள்ளை பிணி மருத்துவம் நூலில் கூறப்பட்டுள்ளது.**

சூலிகணரோகம்

மேல்மூச்சு, இருமல் நெஞ்சு நாவும் நாபியும் புண்போலிருத்தல், பாலுண்ணாமை, முகநாற்றம் என்னும் இக்குணங்களை உண்டாக்கும் என்று ஜீவரட்சாமிர்தம் சிறப்பாயிரம் நூலில் சூலிகணரோகம் என்ற தலைப்பில் கூறப்பட்டுள்ளது.

- ஜீவரட்சாமிர்தம் ப.எ.ண்:288

நோய் கணிப்பு (DIAGNOSIS):

சித்த மருத்துவம் நோய்கணிப்பு:

- பிணியறி முறைமை
- உயிர் தாதுக்கள் (முக்குற்றம்)
- உடல் தாதுக்கள் (ஏழு உடற்கட்டுகள்)
- பருவகாலங்கள்
- ஐவகை நிலங்கள்
- எண்வகைத் தேர்வு
- நீர்க்குறி
- நெய்க்குறி
- நாடி
- மேற்கூறிய காரணிகளின் மாறுபாடுகளை ஒன்றுடன் ஒன்று ஒப்பிட்டு நோய் கணிக்கப்படுகிறது.

பிணியறிமுறைமை

1. பொறியால் அறிதல்
2. புலனால் அறிதல்
3. வினாதல்

சூலிகணத்தில் நோயாளிக்கு காணும் குறிகுணங்கள்:

1. **பொறியால் அறிதல்:**

   மூக்கு - மூக்கு நீர்பாய்தல்

   நா - கோழை நுரைதல்

   கண் - சிலவேலை கண்சிவத்தல்

   காது - இயல்பு

   தோல் - சிலவேலை அரிப்பு தடிப்பு காணால்

2. **புலனால் அறிதல்**

   ஊறு - வெப்பம்

   ஓசை - இயல்பு

   ஒளி - இயல்பு

   சுவை - இனிப்பு சுவை தெரிதல்

   நாற்றம் - மூக்கில் சளி சவ்வு தடிப்புறுதல்

3. **வினாதல் : (கேட்டறிதல்)**

   மருத்துவன் தன்னை நோக்கி வந்த பிணியுற்றவனைப் பற்றி அறிய வேண்டியவற்றை அறிந்தும், தன் பொறி புலன்களால் நோயாளியின் பொறி புலன் வழியாய் உணர்வதை நோயாளியினிடத்தே (அ) அவன் பெற்றோர் சுற்றத்தாரைக் கொண்டோ அவனது பெயர், வயது, திணை, குடும்ப வரலாறு, உணவு பழக்கவழக்கம், முந்தைய நோயின் வரலாறு, ஒவ்வாமை வரலாறு போன்றவற்றை அறிதல் ஆகும்.

உயிர்தாதுக்கள்:

1 வாதம்:

சூலிக்கணத்தில் காணப்படும் வாதத்தின் நிலை:

1. **பிராணன் - பாதிப்பு (மூச்சிவிடல், வாங்கலில் சிரமம்)**
2. **அபானன் - பாதிப்பு (மலச்சிக்கல் உடல் வன்மை குறைதல்)**
3. **வியானன் - பாதிப்பு (உடல் குன்றுதல்)**

4. சமானன் - பாதிப்பு (பிற வாயுக்களை கட்டுப்படித்துவதில் சிரமம்)
5. உதானன் - பாதிப்பு (இருமல் வாந்தி, மேல்மூச்சு, பேச்சொலி குறைதல் உடல் சோர்வு)
6. நாகன் - பாதிப்பு (படித்தல் விளையாடல் போன்ற செயல்களை செய்ய சிரமம்)
7. கூர்மன் - இயல்பு
8. கிருகரன் - பாதிப்பு (வாயில் கோழை நுரைதல், இருமல், மூக்கு நீர் பாய்தல், பசியின்மை)
9. தேவதத்தன் - பாதிப்பு (சில வேளை மிகுந்த அசதி காணல்)
10. தனஞ்செயன்.

2.பித்தம்:

சூலிக்கணத்தில் பித்தத்தின் நிலை:

1. அனற்பித்த - பாதிப்பு (பசியின்மை, செரியாமை)
2. இரஞ்சகபித்தம் - பாதிப்பு (உடல் வெளுப்பு)
3. சாதகப்பித்தம் - பாதிப்பு (அன்றாட வேலைகளை செய்வதில் சிரமம்).
4. பிராசகம் - சில வேலை பாதிப்பு (தோலில் அரிப்பு)
5. ஆலோசகம் - இயல்பு

3.கபம்:

சூலிகணத்தின் கபத்தின் நிலை:

1. அவலம்பகம் - பாதிப்பு (மூச்சு விட சிரமம்)
2. கிலேதகம் - பாதிப்பு (செரியாமை)
3. போதகம் - இயல்பு
4. தற்பகம் - சிலவேளை பாதிப்பு (கண் சிவத்தல்)
5. சந்திகம் - இயல்பு

உடற்கட்டுகள்:

சூலிகணத்தில் உடற்கட்டுகளின் நிலை

1. **சாரம் - பாதிப்பு (உடல் சோர்வு, உடல்குன்றல்)**
2. **செந்நீர் - பாதிப்பு (உடல் வெளுப்பு)**
3. **ஊண் - பாதிப்பு (உடல் இளைப்பு)**
4. **கொழுப்பு - இயல்பு**
5. **என்பு - இயல்பு**
6. **மூளை - இயல்பு**
7. **வெண்ணீர்/சுரோணிதம்**

பருவகாலங்கள்

1. **கார்காலம் - ஆவணி, புரட்டாசி (Aug, Sep)**
2. **கூதிர்காலம் - ஐப்பசி, கார்த்திகை (Oct, Nov)**
3. **முன்பனி - மார்கழி, தை (Dec, Jan)**
4. **பின்பனி - மாசி, பங்குனி (Feb, Mar)**
5. **இளவேனில் - சித்திரை, வைகாசி (Apr, May)**
6. **முதுவேனில் - ஆனி, ஆடி (June, July)**

முக்குற்றங்களும் பருவகாலங்களும்:

வ.எண்	பருவகாலங்கள்	குற்றங்கள்	குற்றத்தின் நிலை
1	கார்காலம்	வாதம்	வேற்றுநிலை வளர்ச்சி
		பித்தம்	தன்னிலை வளர்ச்சி
2	கூதிர்காலம்	வாதம்	தன்னிலை வளர்ச்சி
		பித்தம்	வேற்றுநிலை வளர்ச்சி
3	முன்பனிகாலம்	பித்தம்	தன்னிலை வளர்ச்சி
4	பின்பனிகாலம்	கபம்	தன்னிலை வளர்ச்சி

5	இளவேனில்காலம்	கபம்	வேற்றுநிலை வளர்ச்சி
6	முதுவேனில்காலம்	வாதம்	தன்னிலை வளர்ச்சி

சூலிகணத்தில் பருவகாலங்கள்:

சூலிகணத்தில் பித்ததோடம் பாதிப்படைந்து தன்னிலை வளர்ச்சி அடைந்து பின்னர் வளிகுற்றம் வேற்றுநிலை வளர்ச்சி அடைந்து அதன்பின் கபமானது தன்னிலைவளர்ச்சி அடைந்து சூலிகணத்தின் குறிகுணங்கள் தோற்றிவிக்கின்றன.

எனவே கார்காலம் முதல் பின்பனி காலம் வரையுள்ள காலம் சூலி கணம் தோன்றுவதற்குரிய காலங்களாக்கும் (Sep to March)

ஐவகை நிலங்கள்:

1. **குறிஞ்சி (மலையும் மலை சார்ந்த இடமும்) - சிலேத்துமம் தங்கும்**
2. **முல்லை (காடும் காடு சார்ந்த இடமும்) - வல்லை வாதநோய் உண்டாக்கும்.**
3. **மருதம் (வயலும் வயல் சார்ந்த இடமும்) - முத்தோட நோய்களை ஒழிக்கும்.**
4. **நெய்தல் (கடலும் கடல் சார்ந்த இடமும்) - வாத நோய் குடல் வாயு உண்டாக்கும்.**
5. **பாலை (மணலும் மணல் சார்ந்த இடமும்) - முத்தோடநோய்களுக்கு இருப்பிடம்.**

எண்வகைத் தேர்வு:

"நாடி பரிசம் நாநிறம் மொழிவிழி

மலம் மூத்திரமிவை மருத்துவராயுதம்"

சூலிகணத்தில் எண்வகை தேர்வின் நிலை:

1. **நா - மஞ்சள் (அ) பச்சை மஞ்சள் நிறம்**
2. **நிறம் - தோல், கண், நாம் நகம், வெளுத்தல்**
3. **மொழி - குரல் ஒலி தாழ்தல்**
4. **விழி - சிலவேளை கண் சிவத்தல், வெளுப்பு, கண் அரிப்பு காணல்.**
5. **மலம் - மலக்கட்டு**
6. **மூத்திரம் - வெண்மை கலந்த மஞ்சள் நிறத்துடன் நுரை காணல்**
7. **ஸ்பரிசம் - சிலவேளை சுரம் இருந்தால் மிகு வெப்பமாகவும் சிலவேளை தட்பமாகவும், வியர்வையும் காணும்.**
8. **நாடி - வாத கபம், பித்த கபம், வாத பித்தம்.**

நீர்க்குறி:

“அருந்து மாறிரதமும் அவிரோதமதாய்
அக்கல் அலர்தல் அகாலவூன் தவிர்ந்தழற்
குற்றளவருந்தி உறங்கி வைகறை
ஆடிக்கலசத் தாவியே காதுபெய்
தொரு முகூர்த்தக் கலைக்குட்படு நீரின்
நீர்க்குறி நெய்க்குறி நிருமித்தல் கடனே”

விளக்கம்:

நீர்க்குறி பார்க்கும் முதல் நாள் இரவு நன்கு உணவு உண்ண வேண்டும்.பின் வீடியற்காலை படிகபாத்திரத்தில் நீரினை பிடித்து அதன் நீர்க்குறி மற்றும் நிறக்குறியினை கண்டரறிதல் வேண்டும்.

“வந்த நீர் கரியெடை மணம் நுரை ஏஞ்சலென்
றைந்தியலுளவவை யரைகுது முறையே”

-நோய் நாடல்- முதல் பாகம்

நீரில் நிறம் மணம் நுரை, எடை எஞ்சல் இவற்றை காண வேண்டும்.

நெய்க்குறி:

“நீர்க்குறிக் குரைத்த நிருமான நீரிற்
சிறக்க வெண்னெய்யோர் சிறுதுளி நடுவிடுத்
தென்னுறத் திறந்தவெளி யோகா தமைந்ததி
நின்றதிவலை பொம் நெறிவிழியறிவும்
சிறுநீரில் நல்லெண்ணெய் விட்டு பார்ப்பது.”

விளக்கம்:

கணநோயாளின் சிறுநீரை சோதனை வட்டிலில் ஊற்றி, சூரிய ஒளி மிகுந்த இடத்தில் நீரின் அலையில்லாதபோது நல்லெண்ணெய்த்துளி விட்டு பார்ப்பது.

“அரவென நீண்டில் வாதம்

ஆழிபோற் பரவின் பித்தம்

முத்தொத்து நிற்கின் கபம்”

அரவு(பாம்பு) போல் பரவினால் வாத நீர் ஆழி (மோதிரம்) போல் பரவினால்பித்த நீர் முத்து போல் பரவினால் கப நீர் ஆகும்.

நாடி

சூலிகணத்தில் சதக நாடி நடை:

வாத பித்த நாடி:

“பொருளான வாதத்தில் பித்தஞ் சேர்ந்து

பொருத்து குணங்களா முஷ்ணவாயுசத்தி

செரியாமை புளித்தேப்பம் பொருமல் நீரிற்

சிவப்பு மலம் பிடித்தலுருந் தாதுநட்டம்

கருவான தேகமதி லுளைச்சல் சோம்பல்”

-சதக நாடி

வாத கப நாடி:

“பாங்கான வாதத்தில் சேத்தும நாடிப்

பரிசித்தால் திமிர்மேவு முளைச்சலாகும்

தீங்கான இருமலுடன் சந்தி தோடம்

வாங்காத ஈளைமந் தார காசம்

வலியுடனே புறவீச்சு உள்வீச்சு வீக்கம்

ஓங்காணுஞ் சுரமுடனே சுவாசகாசம்

உண்டாக்கும் வெகுநோய்க்கு முறுதி தானே”

-சதக நாடி

மருத்துவம்:

“நோய் நாடி நோய் முதல் நாடி அது தணிக்கும்

வாய்நாடி வாய்ப்பச் செயல்”

“நோய்நாடல், நோய்முதனாடல்” இவ்விரண்டும் பிணியை அறிவதற்க்கு இன்றியமையாதது பற்றியும், அதன் பிறகுதான் மருந்தைக் குறிப்பிடல் வேண்டும்.

“உற்றான ளவும் பிணியளவுங் காலமும்

கற்றான் கருதிச் செயல்”

மருத்துவ வழிமுறை:

1. தன்னிலை வளர்ச்சியடைந்த ஐயத்தையும், **வாதத்தையும்** சமப்படுத்த வேண்டும்.
2. தன்னிலை வளர்ச்சியடைந்த பித்தத்தை சமப்படுத்த வேண்டும்.
3. வன்மை இழந்த உடற்கட்டுகளை வன்மை அடையச் செய்யும் மருந்தளிக்க வேண்டும்.

பத்தியம்:

"பத்தியத்தினாலே பலனுண்டாம் மருந்து

பத்தியங்கள் போனால் பலன் போகும்- பத்தியத்தில்

பத்தியமே வெற்றிதரும் பண்டிதர்க்கு ஆதலினால்

பத்தியமே உத்தி யென்று பார்"

-தேரையர்

மருந்துண்ணும் காலங்களில் நோயாளியின் நோயின் தன்மை பொருத்து உணவு மற்றும் செயல்களில் ஆகும் ஆகா பத்தியங்கள் அறிவுருத்தப்படுகிறது.

உணவு:

ஆகும் பத்தியம்:

கணம் நோயாளிக்கு ஆகும் கறி விவரம்:

"கண்டு கொள்வார் கறிவகைக்கு விவரம் கேளு

கதலியுட காயாகும் முருங்கைப் பிஞ்சு

கண்டு சிறுகீரை நெல்லிக்காய் தானாகும்

தக்க துவரை அவரையுட பிஞ்சுமாகும்

பண்டு நெய் பால் கற்கண்டு தூதுளங்காய் ஆகும்

பரிவான் முயலுடும்பின் இறைச்சியாகும்

கொண்டுடன் வெள்ளாடு வெள்ளெலியும்

குலத்திலுள்ள விரால் மசிறியாகும்”

-மதலைநோய் தொகுதி-ii

விளக்கம்:

வாழைக்காய் முருங்கைபிஞ்சு, நெல்லிக்காய், துவரை, அவரைப் பிஞ்சு,

தூதுளங்காய், நெய், பால், கற்கண்டு, முயல் இறைச்சி, உடும்பு இறைச்சி,

வெள்ளெலி, விரால்மீன், மசிறி

இவை கணம் நோயாளிக்கு ஆகும் உணவு பதார்த்தமாகும்.

ஆகா பத்தியம்:

குளிர்ந்த நீர், குளிர்பாணங்கள், ஐஸ்கிரீம், இனிப்பு வகைகள், எளிதில் செரிக்காத மாப்பண்டங்கள். பாகல், அகத்திகீரை, குளிர்ச்சியான காய்கறிகள், நோயாளிக்கு ஒவ்வாத பழவகைகள்.

நோய் தடுப்பு முறை மற்றும் மருத்துவம் அறிவுரை:

நோயாளி தனக்கு ஒவ்வாத பொருட்களை கண்டறிந்து அதனை நீக்க வேண்டும்.

சுகாதாரமற்ற உணவுவகைகள் மற்றும் நீரினை தவிர்க்கவும்.

குளிர்காற்று, பனிகாற்றில் வெளியில் செல்வதை தவிர்க்கவும்.

உணவினை இளஞ்சூட்டில் உண்ண வேண்டும்

இரவில் உணவை சீக்கிரம் உண்டு சிறிதுநேரம் சென்ற பின்பு உறங்க செல்ல வேண்டும்.

நோய் எதிர்ப்பு சக்தியை தரும் சத்துள்ள உணவுகளை உண்ண வேண்டும்.

புரிந்து கொள்ளும் வயதிலுள்ள குழந்தைகளுக்கு பிராணாயாமம் போன்ற எளிய மூச்சு பயிற்சி முறைகளை கற்று தருதல் வேண்டும்.

MODERN ASPECTS

CELLULAR DEVELOPMENT OF LUNG IN UTERO

At about 26 week of gestation, the lung reaches the stage of full maturity at which capable of supporting life the rest of the time spent in in utero from 26 week to term is for the development and subdivision of the respiratory bronchioles, the saccules and for the growth of the air ways

POST- NATAL DEVELOPMENT:

At the time of birth there are very few true alveoli, and gaseous exchange takes place through saccules or terminal airspaces. The alveoli start appearing after birth,first on peripheral saccules,then towards proximal respiratory bronchioles and terminal bronchiole.About 127 million alveoli are present at one year and about 280 million alveoli have developed by the age of 8 years.

PECULARITIES OF RESPIRATORY TRACT IN CHILDREN:

Chest wall is thin,elastic, yielding and the intrinsic muscles are weak.Short thorax with the ribs running more horizontally. Increase in antero posterior diameter of the chest with limited respiration. Epiglottis is longer and projects backwards at a greater degree than in older children.

All these peculiarities tend to increase the risk of permanent deformity in the chest wall in the presence of recurrent or longstanding respiratory distress.By above 8 years the chest assumes conical shape since the antero posterior diameter is less than the transverse diameter and the ribs are placed in a slightly downward direction.

ANATOMY & PHYSIOLOGY OF RESPIRATORY SYSTEM

The respiratory system is a complex biological system comprised of several organs that facilitate the inhalation and exhalation of oxygen and carbon dioxide in living organisms.

For all air breathing vertebrates, respiration is handled by the lungs, but these are far from the only components of the respiratory system. In fact, the system is composed of the following biological structures:

1. Nose and nasal cavity
2. Mouth
3. Pharynx
4. Larynx
5. Trachea
6. Bronchi and bronchioles
7. Lungs
8. The muscles of respiration.

A properly functioning respiratory system is a vital part of our good health. Respiratory infections can be acute and sometimes life threatening. They can also be chronic, in which case they place tremendous long term stress on the immune system, endocrine system, HPA axis, and much more.

Anatomical components

Nose and Nasal cavity

The nose and nasal cavity constitute the main external opening of the respiratory system. They represent the entryway to the respiratory tract- a passage through the body which air uses for travel in order to reach the lungs.

The nose is made out of bone, muscle, cartilage and skin, while the nasal cavity is more or less, hollow space. Although the nose is typically credited as being the main external breathing apparatus, its role is actually to provide support and protection to nasal cavity.

The cavity is lined with mucus membranes and little hairs that can filter the air before it goes into the respiratory tract. They can trap all harmful particles such as a dust, mold and pollen and prevent them from reaching any of the internal components.

Oral cavity

The oral cavity, more commonly referred to as the mouth, is the only other external component that is part of the respiratory system. Normally, breathing through nose is preferable to breathing through the mouth.

Not only does the mouth not possess the ability to warm and moisturize the air coming in but it also lacks the hairs and mucus membranes to filter out unwanted contaminants. On the plus side, the pathway leading from the mouth is shorter and the diameter is wider, which means that more air can enter the body at the same speed.

Pharynx

The pharynx resembles a funnel made out of muscles that acts as an intermediary between the nasal cavity and the larynx and esophagus. It is divided into three separate sections: (i) Nasopharynx(ii) Oropharynx (iii) Laryngopharynx.

The nasopharynx is the upper region of the structure, which begins at the posterior of the nasal cavity and simply allows air to travel through it and reach the lower sections.

The oropharynx does something similar, except it is located at the posterior of the oral cavity. Once the air reaches the laryngopharynx, something called the epiglottis will divert it to the larynx.

Larynx

The larynx is the next component, but represents only a small section of the respiratory tract that connects the laryngopharynx to the trachea. It is commonly referred to as the voice box, and it is located near the anterior section of the neck, just below the hyoid bone. The aforementioned epiglottis is part of the larynx, as are the thyroid cartilage, the cricoid cartilage and the vocal folds. The thyroid cartilage also goes by a more common name- the Adam's apple- although, contrary to popular belief, it is present in both men and women.

Trachea

The trachea is a longer section of the respiratory tract, shaped like a tube and approximately 5 inches in length. The trachea, more commonly referred to as the windpipe, connects the larynx to the bronchi and also has the role of filtering the air prior to it entering the lungs.

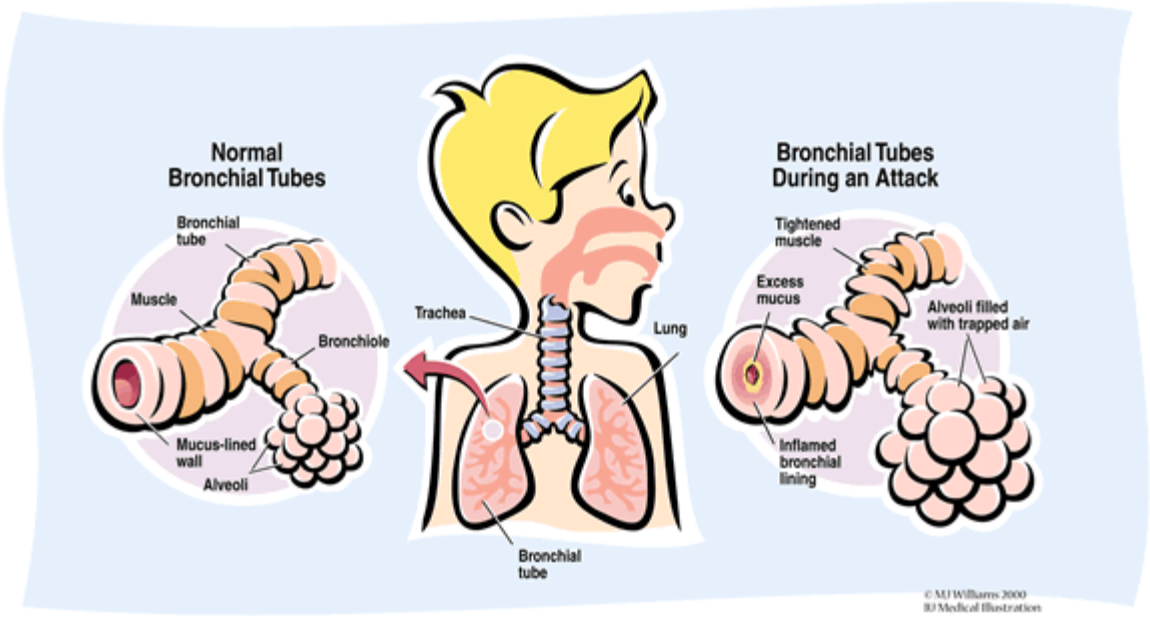
Bronchi

The lower end of the trachea splits the respiratory tract into two branches that are named the primary bronchi**.** These first run into each of the lungs before further branching off into smaller bronchi. These secondary bronchi continue carrying the air to the lobes of the lobes of the lungs, and then further split into tertiary bronchi.

The tertiary bronchi then split into even smaller sections that are spread out throughout the lungs called bronchioles. Each one of these bronchioles continues to split into even smaller parts called terminal bronchioles. The tiny bronchioles do not have any kind of cartilage and instead rely on muscles and elastin. The walls of the bronchi and bronchioles are also lined with muscle tissue, which can control the flow of air going into the lungs.

Lungs

The lungs are two organs located inside the thorax on the left and right sides. They are surrounded by a membrane that provides them with enough space to expand when they fill up with air. The left lung is smaller and has only two lobes while the right lung has three.



Inside the lungs resemble a sponge made of millions of small sacs that are named alveoli. These alveoli are found at the ends of terminal bronchioles and are surrounded by capillaries through which blood passes.

Pleura and Pleural Cavity

The inside of the thoracic cavities and the lung surface are covered with serous membranes, respectively the parietalpleura and the visceral pleura, which are in direct continuity at the hilum.

Depending on the subjacent structures, the parietal pleura can be subdivided into three portions: the mediastinal, costal and diaphragmatic pleurae. The shape of the lungs is determined by the shape of the pleural cavities. Because of the presence of pleural recesses, which form a kind of reserve space, the pleural cavity is larger than the lung volume.

The lungs are maintained in close opposition to the thoracic wall by a negative pressure between visceral and parietal pleurae. A thin film of extracellular fluid between the pleurae enables the lungs to move smoothly along the walls of the cavity during breathing.

Muscles of respiration

The last component of the respiratory system is a muscle structure known as the muscles of respiration. These muscles surround the lungs and allow the inhalation and exhalation of air. The main muscle in this system is known as the diaphragm, a thin sheet of muscle that constitutes the bottom of the thorax.

It pulls in air into the lungs by contracting several inches with each breath. In addition to the diaphragm, multiple intercostals muscles are located between the ribs and they also help compress and expand the lungs.

Blood supply

On the right side there is one bronchial artery which arises either from the third posterior intercostals artery or from the third posterior intercostal artery or from the upper left bronchial artery. On the left side there are two bronchial arteries both of

which arise from the descending thoracic aorta, the upper opposite fifth thoracic vertebra and the lower just below the left bronchus.

The venous blood from the first or two divisions of the bronchi is carried by bronchial veins. Usually there are two bronchial veins on each side. The right bronchial veins drain into the azygos vein. The left bronchial veins drain either into the left superior intercostals vein or into the hemiazygos vein. The greater part of the venous blood from the lungs is drained by the pulmonary veins.

Lymphatic drainage

Superficial vessels drain the peripheral lung tissue lying beneath the pulmonary pleura. The vessels pass round the borders of the lung and margins of the fissures to reach the hilum. Deep lymphatics drain the bronchial tree, the pulmonary vessels and the connective tissue septa. They run towards the hilum where they drain into the bronchopulmonary nodes.

Nerve supply

Parasymphathetic nerves are derived from the vagus. These fibers are (i) motor to the bronchial muscles and on stimulation cause bronchospasm. (ii) secretomotor to the mucous glands of the bronchial tree and (iii) sensory. The sensory fibers are responsible for the cough reflex.

Sympathetic nerves are derived from second to fifth spinal segments. These are inhibitory to the smooth muscle and glands of the bronchial tree. That is how sympathetic drugs, like adrenalin, cause bronchodilatation and relieve symptom of bronchial asthma.

RESPIRATION

During normal quiet breathing, inspiration is the active process and expiration is the passive process. During inspiration, thoracic cage enlarges and lungs expand. During expiration, the thoracic cage decrease in size and attain the preinspiratory position.

Muscles of Respiration

The expansion of the chest during inspiration occurs partly voluntary and partly involuntary. The muscles of normal quiet breathing are the intercostal muscles and the diaphragm. During difficult breathing they are assisted by the muscles of the neck, shoulder and abdomen.

Cycles of Respiration

This occurs 12-15 times per minute and consists of three phases.

- Inspiration
- Expiration
- Pause

Inspiration

The capacity of the thoracic cavity is increased by simultaneous contraction of the inter costal muscles and the diaphragm. The parietal pleura move with the walls of thorax and the diaphragm. This reduces the pressure in the pleural cavity to the level considerably lower than the atmospheric pressure. The visual pleura follow the parietal pleura. During the process, the lungs are stretched; the pressure within the alveoli and the air passage reduced drawing air into the lungs in an attempt to equalize the atmospheric and alveolar air pressure.

The process of inspiration is active as it requires expenditure of energy for muscle contraction. The negative pressure created in the thoracic cavity aids venous return to the heart and is known as respiratory pump.

Expiration

Relaxation of inter costal muscles and the diaphragm results in the downward and inward movement of the rib cage and the elastic recoil of the lungs. As this occurs, the pressure of the gases inside the thorax exceeds the atmospheric pressure and therefore air is expelled from the respiratory tract. The lungs still contain some air and are prevented from complete collapse by the intact pleura. The process is passive as it does not require the expenditure of energy.

After expiration there is a pause, before the next cycle begins.

Physiology Variables Affects Respiration

Elasticity

Loss of elasticity of the connective tissue in the lungs necessitates forced expiration and increased effort of inspiration.

Compliance

The ability of lungs and thorax to expand or the expansibility of lungs and thorax is called the compliance. It is defined as the change in volume per unit change in the pressure.

Air flow resistance

When this is increased e.g. in broncho constriction, more respiratory effort is required to inflate the lungs.

Pulmonary function tests:

Pulmonary function tests are useful in assessing the functional status of the respiratorysystem both in physiological and pathological conditions. Pulmonary function tests are carried out mostly by using spirometer.

The air in lung is classified into two divisions:

I. Lung volume
II. Lung capacities

Lung volume

Lung volumes are the volumes of air breathed by an individual during altered pattern of respiration. The lung volumes are dynamic and are four types:

I. Tidal volume
II. Inspiratory reserve volume
III. Expiratory reserve volume
IV. Residual volume

Tidal Volume (TV)

The volume of air breathed in and out of lungs in a single normal quiet respiration is called tidal volume. Tidal volume signifies the normal depth of breathing. Normal value 500 ml

Inspiratory Reserve Volume (IRV)

An additional amount of air that can be inspired forcefully after the end of normal inspiration beyond tidal volume is called the inspiratory reserve volume. Normal volume 3300 ml

Expiratory Reserve Volume (ERV)

The additional amount of air that can be expired out forcefully, after normal expiration is called the expiratory reserve volume. Normal volume 1000 ml

Residual Volume

Normally, lungs cannot be emptied completely even by forceful expiration. Some amount of air always remains in the lungs even after the forced expiration. The amount of air remaining in the lungs even after forced expiration is called residual volume.

It is significant because of two reasons:

I. It helps to aerate the blood in between breathing and during expiration
II. It maintains the contour of the lungs

Lung capacities

Two or more lung volumes together are called lung capacities. Lung capacities are of four types:

I. **Inspiratory capacity**
II. **Vital capacity**
III. **Functional residual capacity**
IV. **Total lung capacity**

Inspiratory capacity (IC)

It is the maximum volume of air that is inspired from end expiratory position. Inspiratory capacity includes tidal volume and inspiratory reserve volume.

IC = TV + IRV=500+3300=3800ml

Vital capacity (VC)

It is the maximum amount of air that is expelled out forcefully after a maximal (deep) inspiration. Vital capacity includes inspiratory reserve volume, tidal volume and expiratory reserve volume.

VC= IRV+TV+ERV=3300+500+1000=4800ml

Functional residual capacity (FRV)

It is the volume of air remaining in the lungs after normal expiration. Functional residual capacity includes expiratory reserve volume and reserve volume.

FRV= ERV+RV=1000=+1200=2200ml

Total lung capacity (TLC)

Total lung capacity is the amount of air present in the lungs after a maximal inspiration. It includes all the volumes.

TLC=IRV+TV+ERV+RV=3300+500+1000+1200=6000

Alveolar Ventilation

This is the volume of air that moves into and out of the alveoli per minute. It is the tidal volume minus the anatomical dead space, multiplied by the respiratory rate.

Alveolar ventilation = (TV-anatomical dead space) respiratory rate

= (500-150) ml x 15 per minute = 5.25liters / minute.

Lungs function tests are carried out to determine respiratory function and are based on the parameters out lined above.

External Respiration

This is the exchange between alveoli and blood. Total area of gas exchange in the lungs is 70-80 square meters. CO_2 diffuses from venous blood along the contraction gradient into the alveoli until equilibrium with alveolar air is reached. By the same process O_2 diffuses from alveoli to the blood.

Internal Respiration

This is the exchange of air between the tissue and blood. When there is difference in partial pressures, oxygen diffuses outward from the blood to extra cellular fluid then into the cell walls. The process involved is diffusion.

Control of Respiration

Control of respiration is normally involuntary. Voluntary control is exerted during activities such as speaking, singing but is over ridded if homeostasis of arterial PO_2 and PCO_2 is threatened i.e. if this is high arterial PCO_2 or low arterial PO_2.

BRONCHIAL ASTHMA

DEFINITION

Bronchial asthma is a common chronic inflammatory condition of the airways characterized by increased responsiveness of tracheobronchial tree to a variety of stimuli resulting in widespread narrowing of the air space.The term “asthma” in Greek means ‘breathless’ or ‘breathe with open mouth’

PREVALANCE

- Around 0.5-2 percentage of the population suffers from asthma
- 8.9 million childrens had been diagnosed with asthma in their life time , boys (14./.) and girls (10./.)
- The international study on asthma and allergies in childhood (ISAAC) reported prevalence of breathing difficulty in 9./. Of children in rural area of Tamilnadu.
- India has estimated 15 to 20 million asthmatics peoples

ETIOLOGY

1. Allergens such as Food, Pollens, Dust, Mites and Pet dander.
2. Air pollutions and toxins.
3. Emotional stress and anxiety.
4. Weather, especially extreme changes in temperature.
5. Infections bacterial, viral fungal.

PATHOPHYSIOLOGY OF ASTHMA

The inhalation of an allergen in a sensitized atopic asthmatic patient results in a two phase bronchoconstrictor response. The inhaled allergen rapidly interacts with mucosal mast cells via IgE dependent mechanism, resulting in the release of mediators such as histamine and the cysteinylleukotrienes with resulting brochoconstriction.

Airway hyper-reactivity is integral to the diagnosis of asthma and appears to be related, but not exclusively so to airway inflammation. Other factors are likely to be important including the behavior of airway narrowing and the influence of neurogenic mechanisms.

With increasing severity and chronicity of the disease, remodeling of the airway occurs leading to fibrosis of the airway wall, fixed narrowing of the airway and a reduced response to bronchodilator medication.Asthma has the following pathological characteristics:

- Airway obstruction (or airway narrowing), that is reversible (at least partially), either spontaneously or with treatment.
- Airway inflammation
- Airway hyper responsiveness to a variety of stimuli

Airway obstruction

Airway obstruction is responsible for the clinical manifestations of asthma such as wheezing, dyspnoea, and cough.

Airway obstruction, which is determined by the diameter of the airway lumen, can be influenced by a number of factors, including oedema of the bronchial wall, mucus production, airway smooth muscle contraction, and airway remodeling suggesting a rationale for early initiation of anti- inflammatory therapy.

Airway inflammation

The airways of asthma patients are infiltrated by a number of different inflammatory cells, which then cause epithelial disruption and mucosal oedema. An initial trigger in asthma may cause the release of inflammatory mediators from bronchial mast cells, macrophages and epithelial cells.

In addition to the release of cytokines by mast cells, T-cells, fibroblasts, endothelial cells and epithelial cells activate neutrophils, eosinophils and macrophages, which produce chronic allergic inflammation characteristic of asthma.

This process produces epithelial injury, abnormalities in neural mechanisms, increase in airway smooth muscle responsiveness, and airflow obstruction. Epithelial injury can lead to increased permeability and sensitivity to inhaled allergens, irritants, and inflammatory mediators.

In addition, transduction of fluids and reduced clearance of inflammatory substances and respiratory secretions occur with disruption of epithelium mucociliary mechanisms. The inflammatory process may chronically irritate the airway leading to chronic cough symptoms.

Airway hyperresponsiveness:

Airway hyperresponsiveness is an exaggerated bronchoconstrictor response to many physical, chemical and pharmacological agents e.g., allergens, environmental irritants, viral respiratory infections: cold air or exercise.

Whether airway hyperresponsiveness, an abnormality fundamental to the pathogenesis of asthma is present at birth in genetically predisposed individuals, or whether it is acquired, is under investigation.

The level of airway hyperresponsiveness usually correlates with the clinical severity of asthma and with medication requirement. Atopy, the genetic predisposition

for the development of an IgE mediated response to common aero allergens, is the strongest identifiable predisposing factor for developing asthma.

The stimuli that interact with airway responsiveness and incite acute episodes of asthma can be grouped into ten major categories – allergic, pharmacological, environmental, occupational, infections, and exercise – related and emotional stress, food and drink, smoking, heart burn.

Allergens

An allergy with asthma is a common problem. Eighty percent of people with asthma have allergies to airborne substances such as tree, grass, and weed pollens, mold, animal dander, dust mites, and cockroach particles.

Allergic asthma is dependent on IgE response controlled by T and B lymphocytes and activated by the interaction of antigen with mast cells-bound IgE molecule.

Air pollutants

Children with asthma who are exposed to maternal smoking have higher requirements for medication and more frequent emergency department visits. Other irritants such as wood smoke, household sprays, volatile organic compounds (e.g. polishes and cooking oils), and air pollutants may also exacerbate asthma.

Respiratory infections

It is well established that viral respiratory infections can excertable asthma, particularly in children with asthma under the age of 10. Respiratory syncytial virus, rhinovirus, and influenza virus have been implicated, with rhinovirus being implicated in the majority of the exacerbation of asthma in children.

The role of infections as triggers also appears to be important but not common in adults. Respiratory virus may exacerbate asthma through different mechanism. One is that viral infections may cause epithelial damage and airway inflammation, both of which events may create asthma symptoms.

In addition, virus has been shown to potentiate the allergic response to allergens by increasing the release of inflammatory mediators and the cascade of inflammatory events characteristic of asthma.

Weather changes

Adverse weather conditions such as freezing temperatures, high humidity, thunderstorms and episodes of acute pollution brought out by weather conditions have been associated with asthma exacerbations.

CLASSIFICATION OF BRONCHIAL ASTHMA:

Bronchial asthma can be divided in to two types

1. Extrinsic asthma (atopic)

2. Intrinsic asthma (Non-atopic)

3. Mixed type

1. Extrinsic asthma (Atopic):

1.This is the not common type of asthma.

2. It is usually begins in childhood or in early adult life.

3. It is often associated with a personal and/ or family history of allergic diseases such as rhinitis, urticarial and eczema.

4. Positive wheal and flare skin reactions to intradermal injections of antigens extract and increased level of IgE in serum.

2. Intrinsic asthma (Non - atopic):

1. This type of asthma develops later in adult life with negative personal or family history of allergy, negative skin test.

2. They have normal serum level IgE

3. Nasal polyp and chronic bronchitis are commonly present

4. No recognisable allergens but 10% of patients become hypersensitive to drugs (aspirin)

CLINICAL MANIFESTATION:

CARDINAL SIGN:

The presence of usually diffuse, polyphonic, bilateral and particularly expiratory wheeze is the cardinal signs of asthma.

COMMON SYMPTOMS:

1. Expiratory wheeze
2. Shortness of breath
3. Chest tightness
4. Intermittent dry cough
5. Dyspnea
6. Intermittent non – focal chest pain
7. Nocturnal cough
8. Decreased physical activity
9. General fatigue

ASSOCIATED SYMPTOMS:

- Allergic rhinitis
- Sneezing
- Itching
- Nasal congestion
- Gastro oesophageal reflux

SEVERE PERSISTENT ASTHMA:

- Anxiety due to stage of panic
- Difficulty in talking
- Increased breathlessness

- Silent chest (absence of wheeze)
- Profuse sweating
- Pulses paradoxes
- Cardiac arrhythmias

DIAGNOSIS:

The diagnosis of asthma is a clinical one. Hence detailed history, physical examination and additional information's regarding family history of atopic, allergic exposure, circadian variation and seasonal exacerbation should be carefully considered.

DIFFERENTIAL DIAGNOSIS:

Bronchiolitis

Aspiration of foreign body

Hypersensitivity pneumonitis

DRUG REIVEW

PREPARATION AND PROPERTIES OF TRAIL DRUGS

INTERNAL MEDICINE

ATHIMATHURA CHOORANAM:

INGREDIENTS:

ATHIMADHURA CHOORANAM is a Herbal Siddha formulation comprising of purified

1 .ATHIMATHURAM (*Glycirrhizaglabra*) - 10gm

2. ELAM (*Elettariacardamomum*) - 10gm

3. ELAVANGAPATTAI (*Syzygiumaromaticum*) - 10gm

4. SENBAGA MOKKU (*Micheliachampaca*) - 10gm

5. KOTTAM (*Costusspeciosus)* - 10gm

6. CHUKKU (*Zingiberofficinale*) - 10gm

7. NAR CHIRAGAM (*Cuminumcyminum*) - 10gm

8. KORAI KIZHANGU (*Cyperusrotundus*) - 10gm

9. SUGAR - 80gm

SOURCE OF THE DRUGS:

The required raw drug is procured from a well reputed indigenous drug shop and it will be authenticated by the pharmacologist, SCRI Chennai.

PURIFICATION OF RAW DRUGS:

Raw drugs are purified a mentioned in Sikicharathna Deepam Sarakku Suthi Muraigal.

PREPARATION:

The purified above first 8 raw drugs are made into fine powder as mentioned in the literature and finally sugar added.

DRUG STORAGE:

The trial drug is stored in clean dry air tight container and it is dispensed to the patients in packets.

DOSE:

500mg (Twice a day)

ADJUVANT:

Honey

DURATION:

21 days

REFERENCE:

Balavagadam, Page no: 479, Paadal .No – 41

PROPERTIES OF TRAIL DRUG:

1. **ATHIMATHURAM:**

Botanical name:Glycyrrhizaglabra

English name: Jamaica liquorice

Family name:Fabaceae

Part used: Root

Suvai:inipu

Thanmai:seetham

Pirivu:inipu

பொதுகுணம்:

“புத்திக்கு வித்தாகுஞ் சந்தாபந் தீர்க்கும்

புகைந்தெடுக் குஞ்சேட்டு மத்தைப் பித்த ரோகத்தை

அத்திப் பற்றின மேகந்தன்னை வாதத்தினை

யறுத்திடும் வச்சிரமென்பாரதி மதுரந்தனையே”

ACTIONS:

Demulcent, Emollient, Mild Expectorant, Tonic

CHEMICAL CONSTITUENTS:

Beta glycyrrhetinic acid, Liquiritigenine, Liquiritine, Disodium glycyrohetinic acid, glycyricin etc.

PHARMACOLOGICAL ACTIVITIES:

Immuno modulator, Anti-viral, Antitussive, Antioxidant, Antimicrobial, Hepatoproductive

REFERENCE:

Phytotheraphy Res. 22, 709-724 (2008) Published online in wileyinterscience

DOI: 10.1002/PTR.2362.

2. ELAM:

Botanical name	:	Electariacardamomum
English name	:	Cardamom seeds
Family name	:	Zingiberaceae
Part used	:	Seeds
Suvai	:	Kaarpu

Thanmai : Veppam

Pirivu : Kaarpu

பொதுகுணம்:

தொண்டை வாய் கவுள்தாலு குதங்களில்

பண்டை வெக்கை விதாக நோய்காசமும்

அண்டையீளை வன்பித்தம் இவைக்கெல்லாம்

ஆலமாங்க மழ்ஏல மருந்தே

ACTIONS:

Stimulant, Stomachic

CHEMICAL CONTITUENTS:

Alpha- pinene,Sabinene,Myrecene, Limonene, Cineole, Cymene, Methyl heptenone

PHARMACOLOGICAL ACTIVITIES:

Anti – athmatic, Bronchodilator, Antimicrobial, Antieptic

REFERENCE:

A journal of Bangladesh pharmacological society 2011; 6 ;34-37.

3. ELAVANGAPATTAI:

Botanical name : Cinnamomumverum, Presl

English name : Bark of cinnamon

Suvai : Kaaram, inipu

Thanmai : Thatpam

Pirivu : Inipu

பொதுகுணம்:

தாதுட்டம் பேதி சருவவிஷம் ஆகியநோய்

பூதகிரகஞ் சிலந்திப்பூச்சி விடஞ்- சாதிவிடம்

ஆட்டுமிரைப் போடிருமல் ஆகிய நோய்க் கூட்டமற

ஓட்டு மிலவங்கத் துரி

ACTIONS:

Stimulant

CHEMICAL CONTITUENTS:

B-pinene, Limonene, Farnesol, Benzaldehyde, 2-heptanone

PHARMACOLOGICAL ACTIVITIES:

Antioxidant, Antiviral, Antimicrobial

REFERENCE:

Asian pacific journal of tropical biomedicine, DOI:10.1016/S2221-1691(14)60215-X

4. SENBAGA MOKKU:

Botanical name	:	Micheliachampaca.Linn
English name	:	Yellow chamba
Part used	:	Bud flower
Suvai	:	Kaippu
Thanmai	:	Veppam
Pirivu	:	Kaarpu

பொதுகுணம்:

வாதபித்தம் அத்திசுரம் மாமேகம் சுத்தசுரந்

தாது நட்டங் கண்ணழற் சிதங்காவே- மாதேகேள்

திண்புறு மனக்களிப்பாந் திவ்யமனம் உட்டினஞ்சேர்

சண்பகப் பூவதற்குத் தான்

ACTIONS:

Stimulant, Tonic, Demulcent

CHEMICAL CONSTITUENTS:

Mono and Sequiterpenes, Acetone, Benzene

PHARMACOLOGICAL ACTIVITIES:

Antioxident

REFERENCE:

International journal of enhanced research and science, technology & engineering, ISSN: 2319-7463, Vol. 5, Issue 8, Aug- 2016.

5. **KOTTAM:**

Botanical name	:	Costus specious
English name	:	Costus root
Family name	:	Zingiberaceae
Part used	:	Root
Suvai	:	Kaippu, Viruvirupu
Thanmai	:	Veppam
Pirivu	:	Kaarpu

பொதுகுணம்:

முட்டியெழு முளைவிரணம் சுவாசகாசம்

மூடிகத்தோ டரவுமர விடங்கள் மேகக்

கட்டிஅஜ கல்லி விடபாகம் பூத

கணம்பாலகிரகமொடு தாதுநட்டஞ்

ACTIONS:

Stomachic, Expectorant, Tonic, Stimulant

CHEMICAL CONSTITUENTS:

B–sitosterol, D–glucopyranoside, Diosgenin, Ligogenin, Octacosanicacid

PHARMACOLOGICAL ACTIVITIES:

Anti – inflammatory

REFERENCE:

Indian journal of medical research, department of pharmacognacy, Moradabad – 244 001

6. **CHUKKU:**

Botanical name	:	Zingiberofficinale, Rosc.
English name	:	Dried ginger
Part used	:	Rhizome
Suvai	:	Kaarpu
Thanmai	:	Veppam
Pirivu	:	Kaarpu

பொதுகுணம்:

சூலைமந்தம் நெஞ்செரிப்பு தோட மேப்பம் மழலை

மூலம் இரைப்பி ருமல் மூக்குநீர்- வாலகப

தோடமதி சாரந்தொடர்வாத குன்மநீர்த்

தோடம் ஆமம் போக்குஞ்சுக்கு

ACTIONS:

Stimulant, Stomachic, Carminative

CHEMICAL CONSTITUENTS:

Paradols, Gingerdiacetates, Gingerdiones, Gingerglycolipids A,B and C, Sesquiterpenes

PHARMACOLOGICAL ACTIVITIES:

Bronchodilator, Anti- inflammatory, Antioxidant, Analgesic

REFERENCE:

International journal of pharma and bio science, A.K.Ghosh, volume 2, issue 1, Mar 2011, ISSN 0975-6299.

7. **NAR CHIRAGAM:**

Botanical name	:	Cuminumcyminum.Linn
English name	:	Cumin seeds
Part used	:	Seeds
Suvai	:	Inipu
Thanmai	:	Thatpam
Pirivu	:	Inipu

பொதுகுணம்:

வாந்தி யருசிகுன்மம் வாய்நோய் பீலிகமிரைப்

பேற்றிருமல் கல்லடைப்பிலா ஞசனமுட்- சேர்ந்தகம்மல்

ஆசனகுடாரியெனும்அந்தக்கிரகணியும்

போசனகுடாரியுண்ணப்போம்

ACTIONS:

Carminative, Stimulant, Stomachic, Astringent

CHEMICAL CONSTITUENTS:

Cuminaldehyde, O-cymene, Limonene, Beta-pinenz, Coumarin

PHARMACOLOGICAL ACTIVITIES:

Antioxidant, Bronchodilator, Immunomodulator

REFERENCE:

IOSR journal of pharmacy, profDr Ali Esmail Al- Snafi, department of pharmacology, volume 6, ISSN 2250-3013.

8. **KORAI KIZHANGU:**

Botanical name	:	Cyperusrotundus, Linn.
English name	:	Nut grass
Family name	:	Cyperaceae
Part used	:	Root tuber
Suvai	:	Thuvarpu
Thanmai	:	Thatpam
Pirivu	:	Inipu

பொதுகுணம்:

சீதசுரந்தீர்க்குஞ் செம்புனல் பித்தம்போகும்

வாதசுரந் தணிக்கும் வையகத்தில்

கோலவுணவைக் குமரனடலிலடு

கோலவுணவைக் கொடு கயத்தை

ACTIONS:

Simulant, Tonic, Demulcent, Astringent

CHEMICAL CONSTITUENTS:

Alpha cyperone, beta – selinene, patchoulenone, cyperene, sugeonol, sesquiterpene, routudone

PHARMACOLOGICAL ACTIVITIES:

Antipyretic,antidiarrhoeal, antimicrobial, hepatoprotective, antiallergic, analgesic, anti- inflammatory, antioxidant

REFERENCE:

International journal of scientific and research publication, volume-3, Issue 5, may 2013

Arch pharm res.2011 Feb; 34 (2); 223-8, Doi;10,1007/s 12272-001-020-z-epub 2011 march

MATERIALS AND METHODS

Approval of the Screening committee and Institutional ethical committee (IEC) were obtained for undertaking the present study.

The study design and the underlying hypothesis and the rights to withdraw from the study at any time were informed orally and in writing to all the participants. A Single arm open clinical trial was undertaken in OPD of PG department of Kuzhanthaimaruthuvam , Govt. Siddha medical college attached with Arignar Anna Hospital of Indian Medicine and homoeopathy, Arumbakkam, chennai-106 for a period of one year. 40 patients who fulfilled the inclusion criteria were included for the study.

CLINICAL STUDIES:

After finishing the toxicity studies 40 cases were selected from the OPD of Kuzhanthaimaruthuvam Department, Arignar Anna Hospital of Indian Medicine and homoeopathy, Arumbakkam, chennai-106. They were treated with the trail drug Athimadhurachooranam and observed for prognosis clinically.

STUDY DESIGN & CONDUCT OF THE STUDY:

Study Type: An Open Clinical Trail

StudyPlace: Arignar Anna Hospital of Indian Medicine and homoeopathy Govt.SiddhaMedicalCollege,
Arumbakkam, Chennai – 600 106.

Study Period: 12 months after completion of preclinical studies.

Sample size: 40 patients.

Treatment period: 21 days

POPULATION AND SAMPLE:

1. Population consist of paediatric patients attending the OPD of Arignar Anna Hospital, GSMC, Chennai-106
2. The sample consist of patients 2 – 7 year age group fulfilling all the inclusion criteria and exclusion criteria.

STUDY PARTICIPANTS:

INCLUSION CRITERIA:

- Age 2 to7 years
- Cough without expectoration
- Dyspnoea
- Chest tightness
- Wheezing
- Decreased physical activity
- Poor diet intake

EXCLUSION CRITERIA:

- Childhood TB
- Hypersensitivity Pneumonitis
- Lung abscess
- Cystic fibrosis
- Bronchiolitis

WITHDRAWAL CRITERIA:

- Intolerance to the drug and development of adverse reactions during the trial.
- Patients turned unwilling to continue in the course of clinical trial.
- Any other acute illness

ASSESMENT AND INVESTIGATION:

CLINICAL ASSESMENT:

- Cough without expectoration
- Dyspnoea

- Running nose
- Chest tightness
- Wheezing
- Decreased physical activity

Poor diet intake

SIDDHA ASSESSMENT

Naa

Niram

Mozhi

Vizhi

Sparisam

Malam

Naadi

Moothiram – Neerkuri, Neikuri

LAB INVETIGATION:

1. Blood: TC, DC, ESR, HB.
2. Urine analysis : Albumin, Sugar, Deposits.

SPECIFIC INVESTIGATION:

1**.**Absolute Eosinophil count.

2.Peak expiratory flow rate(above 5 years).

3**.**Chest X-ray PA view.

METHODOLOGY OF TREATMENT:

STUDY ENROLMENT:

Patients reporting at the OPD associated with clinical features of cough with expectoration, dyspnoea, wheezing, chest tightness, running nose, decreased physical

activity, poor diet intake are chosen for enrollment based on the inclusion criteria. The patient who are enrolled are informed about the study trail drug, possible outcomes of the study in the language and terms understandable to them and the informed consent/Assent would be obtained from the patient/patients parent using consent/assent form.

CONDUCT OF THE STUDY:

The trail drug will be given in the OPD department of kuzhanthaimaruthuvam, GSMC, Chennai. The patients will be asked to have a regular follow up in the OPD once in a7 days. In each and every visit the clinical assessment will be recorded in the prescribed proforma. The laboratory investigation will be done before and after treatment and recorded in the prescribed format.

DATA COLLECTION FORMS:

Required information will be collected from each patient by using following forms.

Form I : Screening and selection proforma

Form II : History taking proforma

Form III : Clinical assessment proforma

Form IV : Clinical assessment during and after trial

Form V : Laboratory Investigation proforma

Form VI : Informed consent/Assent form

Form VII : Withdrawal form

Form VIII : Patient information sheet

DATA ANALYSIS:

After enrolling the patients in the study a separate file for each patient will be maintained and all forms will be kept in the file. Whenever the patient visits OPD during the study period necessary entries will be made in the assessment forms. The

data entries and adverse events if any will be monitored by the Head of the Department.

OUTCOME OF TREATMENT

Primary Outcome:

Primary outcome is mainly assessed by comparing the reduction of symptoms before and after treatment.

Secondary Outcome:

Secondary outcome is assessed by comparing the safety parameters before and after treatment.

ADVERSE EFFECT AND SERIOUS EFFECT MANAGEMENT:

If the trial patient develops any adverse reactions the patient will be referred to the Pharmacovigilance department of SCRI and documented. For any adverse effect the investigator will give the proper management in the OPD.

ETHICAL ISSUES

1. Informed consent/Assent will be obtained from the patient/ patient's parent or guardian after explaining about the clinical trial in an understandable language.
2. After the consent/Assent of the patient or patient's parent (through consent/Assent form) if they fit in the criteria they will be enrolled in the study.
3. Treatment will be provided free of cost.
4. The patients who are excluded (as per the exclusion criteria) will be referring to OPD.

ANALYSIS OF TRAIL MEDICINE:

1. The acute and subacute toxicity study was carried out in Sathyabamauniversity, Rajiv Gandhi salai, Chennai.

2. The pharmacological analysis of trail drug for Antihistmaine, Bronchodilator, Immunomodulator activity was carried out in Sathyabama university, Rajiv Gandhi salai, Chennai.
3. The physiochemical analysis was performed in Sathyabamauniversity, Rajiv Gandhi salai, Chennai
4. Observations made from patients with signs and symptoms of the disease and their prognosis were recorded.

RESULTS AND OBSERVATIONS

40 patients with confirmed diagnosis of soolikanam with satisfying the inclusion criteria wear enrolled after obtaining written informed consent and were to receive “ATHIMATHURA CHOORANAM” with dosage of 500mg twice daily for 21 days.

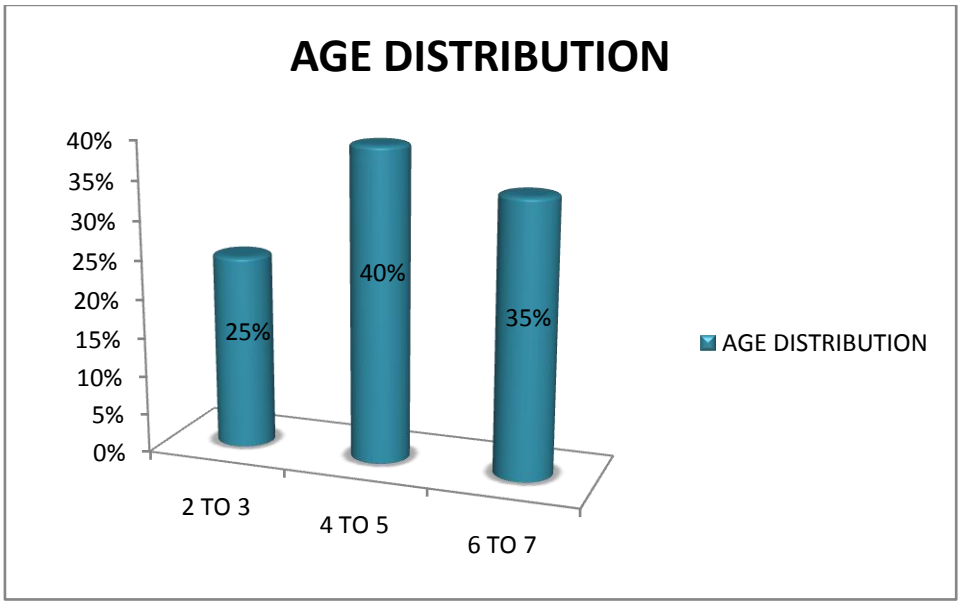
Results were observed with respect to the following criteria:

1. Age
2. Sex
3. Parent’s socio – economic status
4. Paruvakaalam
5. Diet history
6. Family history
7. Distribution of lands
8. Mukkutram
9. 7 uadlkattugal
10. Envagaithervugal
11. Neikuri
12. Aetiological factors
13. Clinical features
14. Results
15. Investigation profile

OBSERVATION:

1. **AGE DISTRIBUTION :**

S.NO	AGE	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	2 to 3 years	10	25%
2.	4 to 5 years	16	40%
3.	6 to 7 years	14	35%

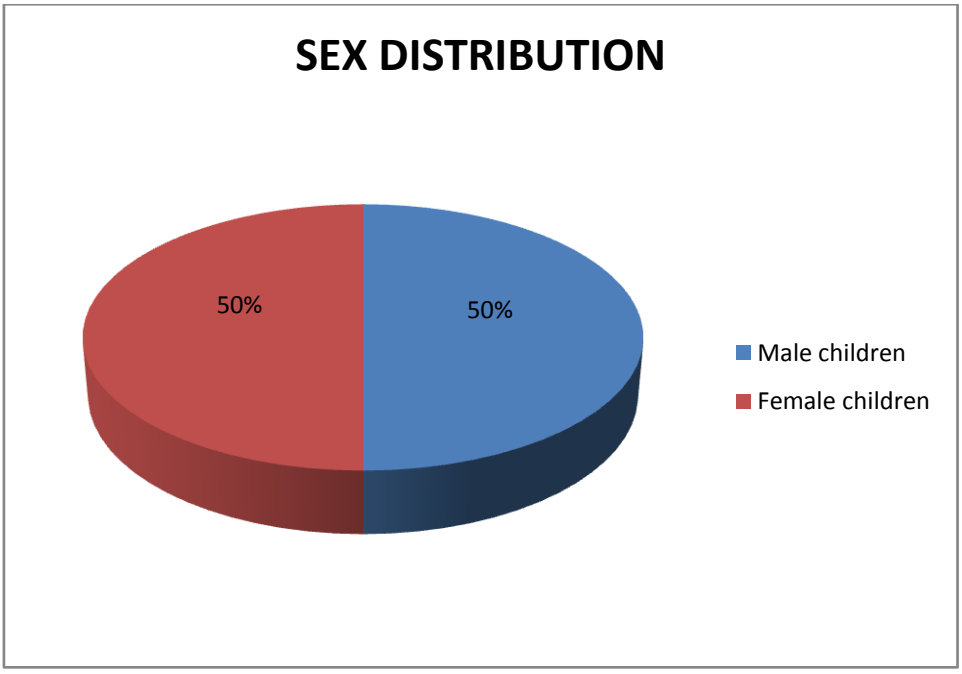


INFERENCE:

Therefore the above table indicates that children under the age group of 4 to 5years (40%) are mostly affected, 35% children are affected in the age group of 6 to 7years and 25% children are affected in the age group of 2 to 3years.

2. SEX DISTRIBUTION :

S.NO	SEX	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Male children	20	50%
2.	Female children	20	50%

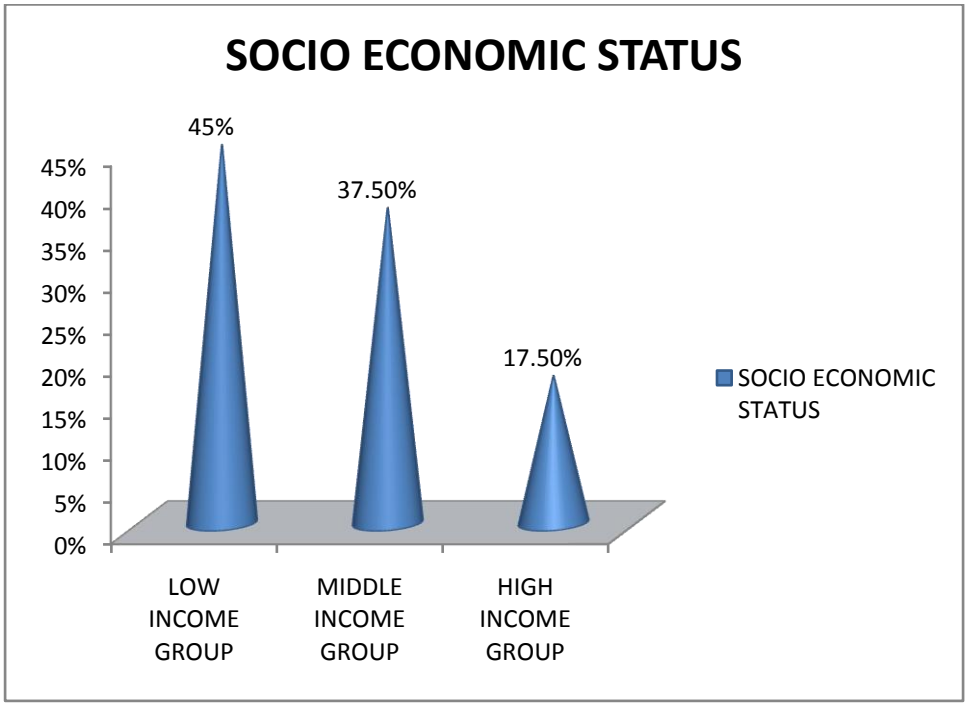


INFERENCE:

Among 40 cases of the study 20 were male children (50%) and 20 were female children (50%). So there is even distribution in male and female children.

3. PARENT'S SOCIO – ECONOMIC STATUS :

S.NO	SOCIO – ECONOMIC STATUS	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Low income group	18	45%
2.	Middle income group	15	37.5%
3.	High income group	7	17.5%

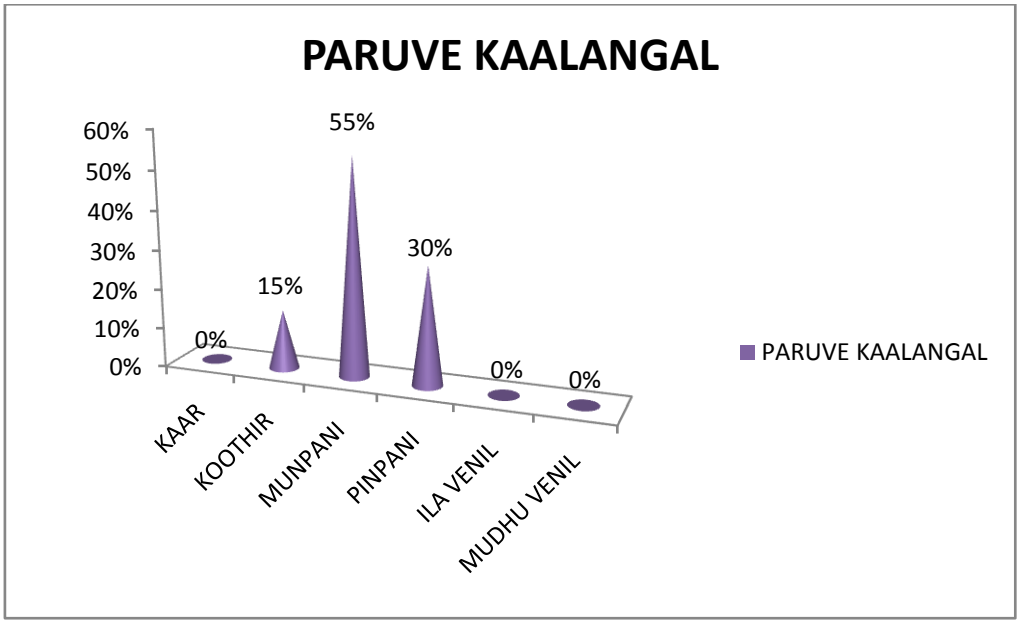


INFERENCE:

According to this study 18 cases (45%) belongs to the low income group, 15 cases (37.5%) belongs to the middle income group and 7 cases (17.5%) belongs to high income group. The highest incidence occurred in low income group.

4. DISTRIBUTION OF PARUVA KAALANGAL :

S.NO	PARUVA KAALANGAL	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	KaarKaalam (Mid Aug to Mid Oct)	0	0
2.	KoothirKaalam (Mid Oct to Mid Dec)	6	15%
3.	MunpaniKaalam (Mid Dec to Mid Feb)	22	55%
4.	PinpaniKaalam (Mid Feb to Mid Apr)	12	30%
5.	ElavenilKaalam (Mid Apr to Mid Jun)	0	0
6.	MudhuvenilKaalam (Mid Jun to Mid Aug)	0	0

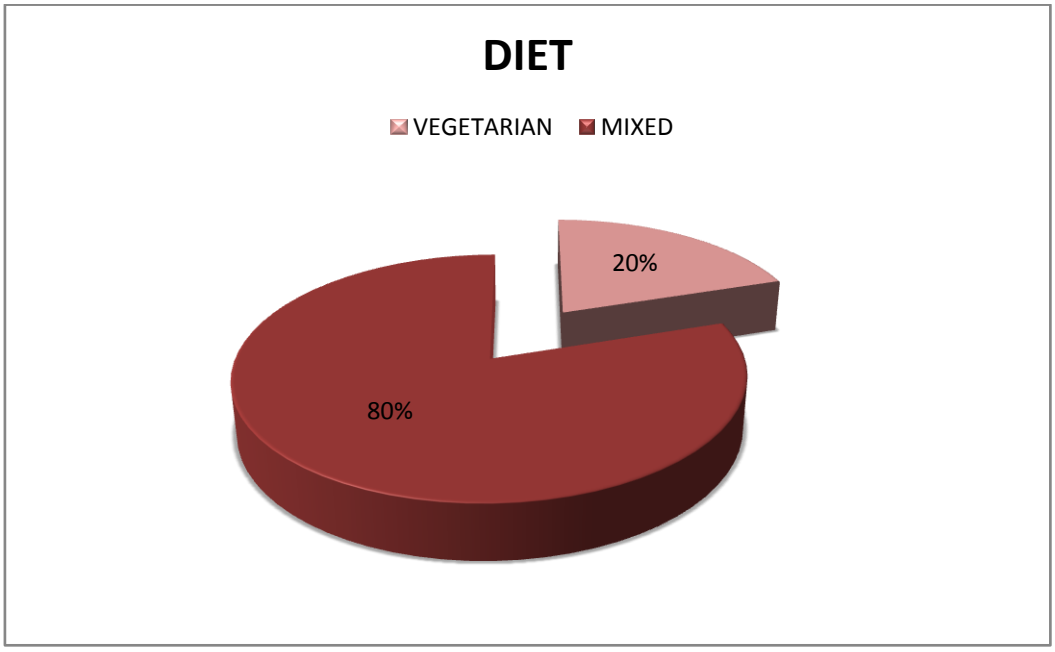


INFERENCE:

The table showed the more prevalence of the disease under Munpanikaalam (55%), 30% of children affected in Pinpanikaalam and 15% of children affected in Koothirkaalam.

5. DIET HISTORY :

S.NO	DIET HISTORY	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Vegetarian	8	20%
2.	Mixed	32	80%

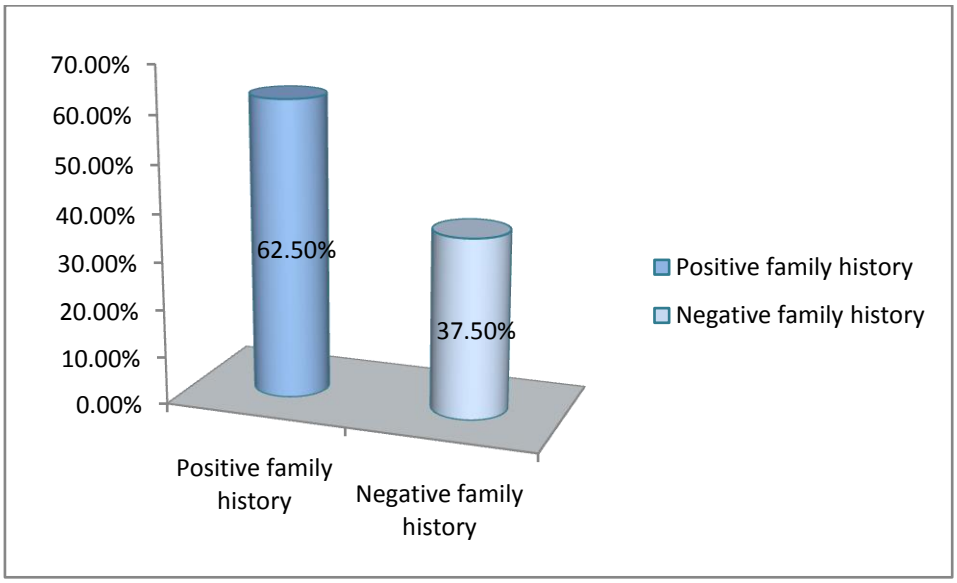


INFERENCE:

According to diet, high incidence of cases (80%) was noted in mixed diet and in vegetarian (20%) cases were noted.

6. FAMILY HITORY :

S.NO	FAMILY HISTORY	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Positive family history	25	62.5%
2.	Negative family history	15	37.5%

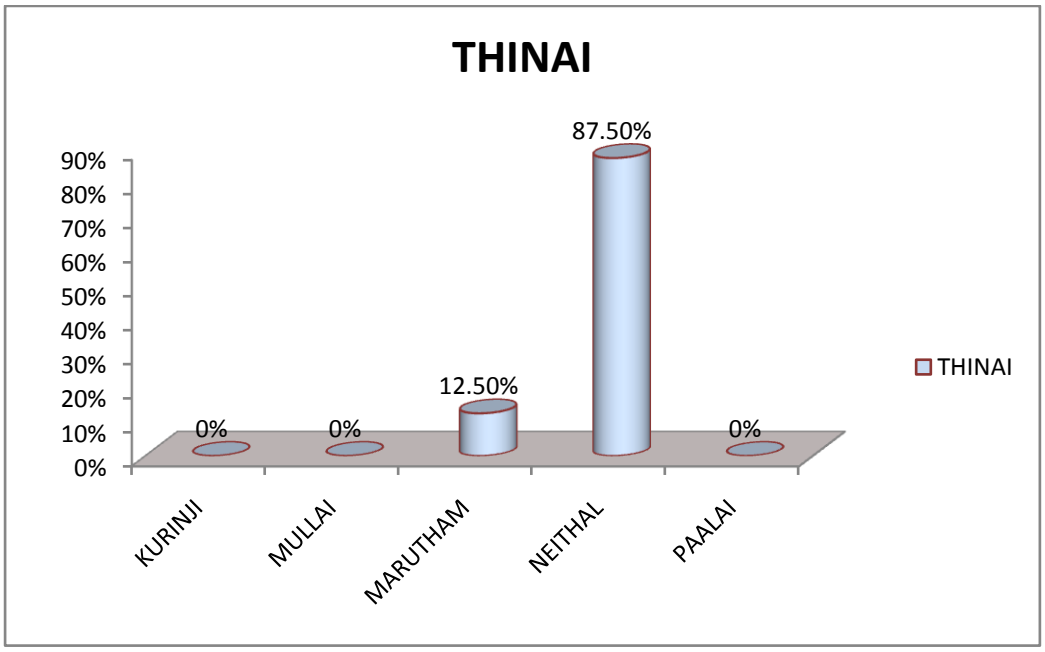


INFERENCE:

Out of 40 cases 25 (62.5%) cases have positive family history and 15 (37.5%) cases have negative family history.

7. DISTRIBUTION OF LANDS :

S.NO	THINAI	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Kurinji (Hill)	0	0%
2.	Mullai (Forest)	0	0%
3.	Marutham (Fertile)	5	12.5%
4.	Neithal (Coatal)	35	87.5%
5.	Paalai (Desert)	0	0%



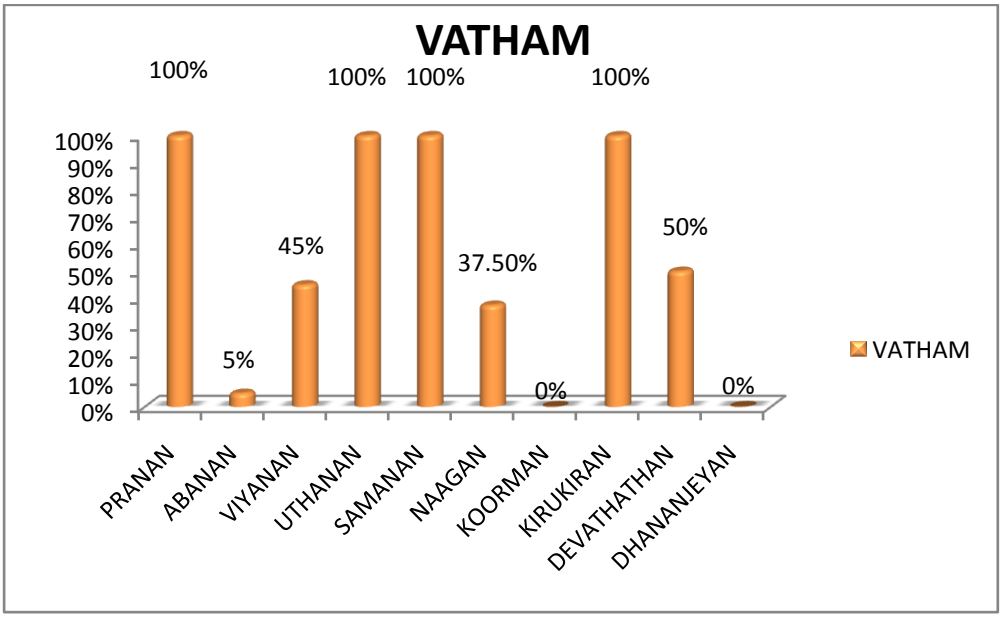
INFERENCE:

According to siddha concept, no diseases occur to the people living in Marutham. Incidence of disease in Maruthanilam and Neithalnilam were due to altered life style and environment. In addition, the study was conducted in and around Chennai, a Neithal land. Therefore, majority of cases is from the neithal land.

8. MUKKUTRA THEORY :

A) DERANGEMENTS OF VATHAM :

S.NO	TYPES OF VATHAM	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Pranan	40	100%
2.	Abanan	2	5%
3.	Viyanan	18	45%
4.	Uthanan	40	100%
5.	Samanan	40	100%
6.	Naagan	15	37.5%
7.	Koorman	0	0%
8.	Kirukiran	40	100%
9.	Devathathan	20	50%
10.	Dhananjeyan	0	0%

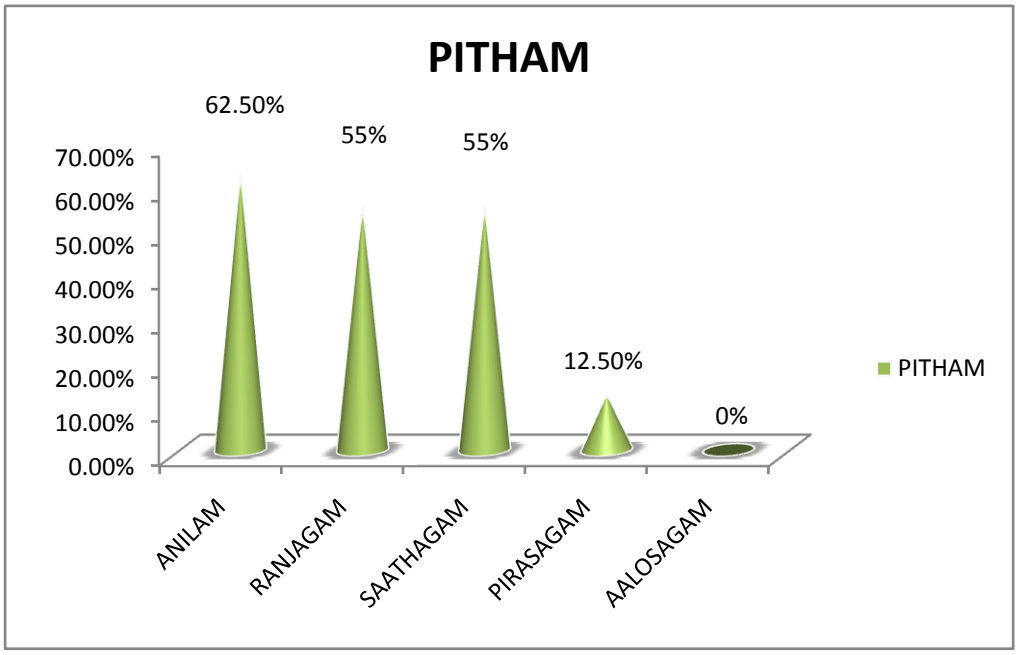


INFERENCE:

In vatham, all cases had derangement in Pranan, Uthanan, Samanan and Kirukiran (100%). Devathathan was deranged in 50%, Viyanan was deranged in 45%, Naagan was deranged in 37.5%, Abanan was deranged in 5%.

B) DERANGEMENTS OF PITHAM :

S.NO	TYPES OF PITHAM	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Anilapitham	25	62.5%
2.	Ranjagapitham	22	55%
3.	Saathagapitham	22	55%
4.	Pirasagapitham	5	12.5%
5.	Aalosagapitham	0	0%

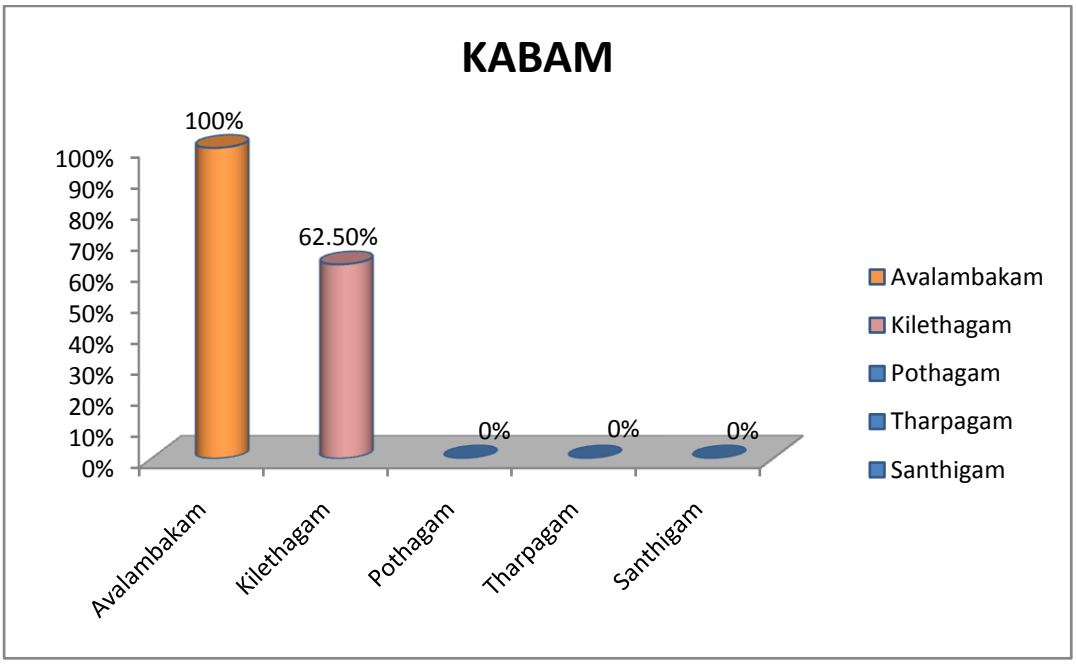


INFERENCE:

In pitham, Anilam was deranged in 62.5% of cases, 55% of cases had deranged in Ranjagam, Saathagam,Pirasagam was deranged in 12.5% of cases.

C) DERANGEMENTS OF KABAM :

S.NO	TYPES OF KABAM	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Avalambakam	40	100%
2.	Kilethagam	25	62.5%
3.	Pothagam	0	0%
4.	Tharpagam	0	0%
5.	Santhigam	0	0%

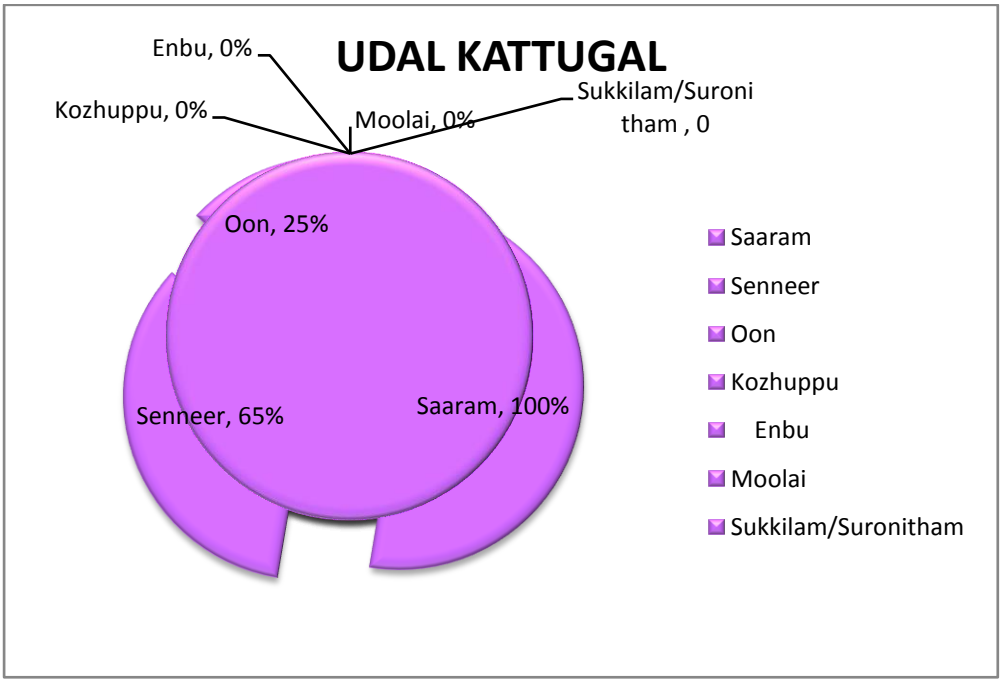


INFERENCE:

In Kabam, Avalambagam was deranged in all patients (100%),Kilethagam was deranged in 62.5% of patients.

9. 7 UDAL KATTUGAL :

S.NO	7 UDAL KATTUGAL	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Saaram	40	100%
2.	Senneer	26	65%
3.	Oon	10	25%
4.	Kozhuppu	0	0%
5.	Enbu	0	0%
6.	Moolai	0	0%
7.	Sukkilam/Suronitham	0	0%

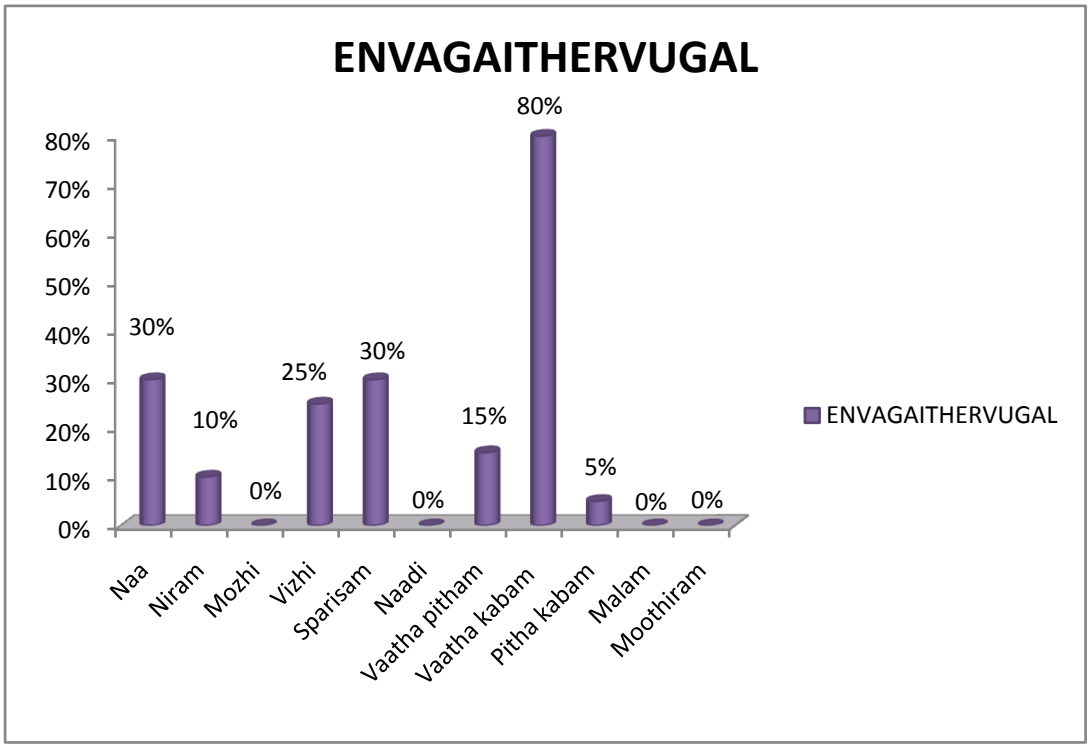


INFERENCE:

In 7 Udalkattugal 100% of the cases had derangement in Saaram, 65% of cases had derangement in Senneer, 25% of cases had derangement in Oon.

10. ENVAGAI THERVUGAL :

S.NO	ENVAGAI THERVUGAL	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Naa	12	30%
2.	Niram	4	10%
3.	Mozhi	0	0%
4.	Vizhi	10	0%
5.	Sparisam	12	30%
6.	Naadi	0	0%
A	Vaathapitham	6	15%
B	Vaathakabam	32	80%
C	Pithakabam	2	5%
7.	Malam	0	0%
8.	Moothiram	0	0%

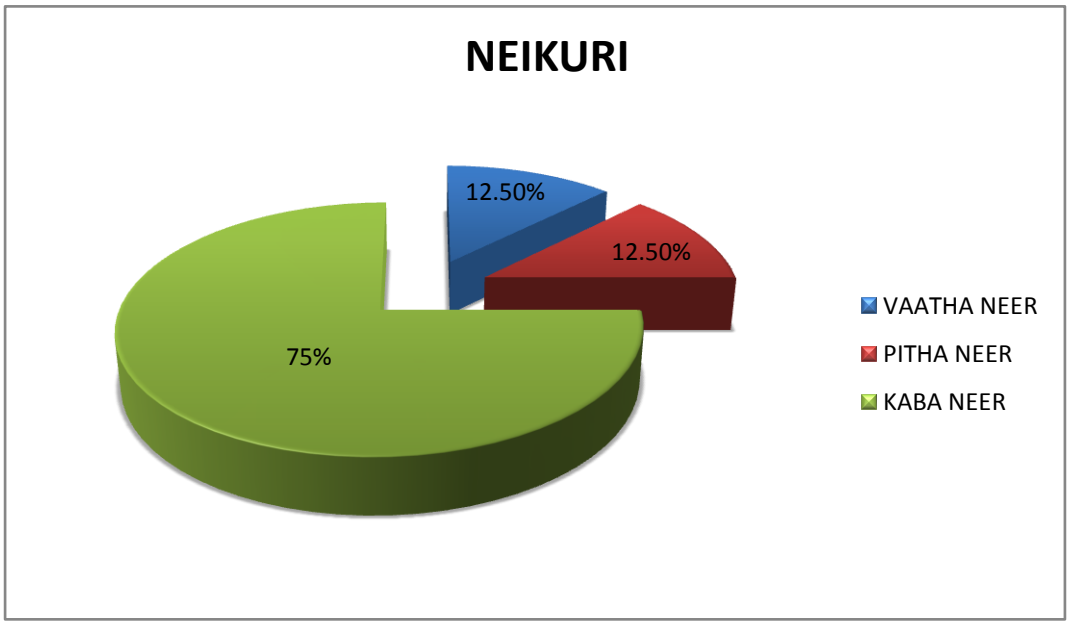


INFERENCE:

In Envagaithervugal, Naa and Sparisam were affected in 30% of cases, Vizhi affected in 25% of cases, Niram affected in 10% of cases, Vathakabam affected in 80% of cases, Vathapitham affected in 15% of cases and Pithakabam affected in 5% of cases.

11. NEIKURI :

S.NO	NEIKURI REFERENCE	CHARACTER OF URINE	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Vaathaneer	Spread like snake	5	12.5%
2.	Pithaneer	Spread like ring	5	12.5%
3.	Kabaneer	Spread like pearl	30	75%

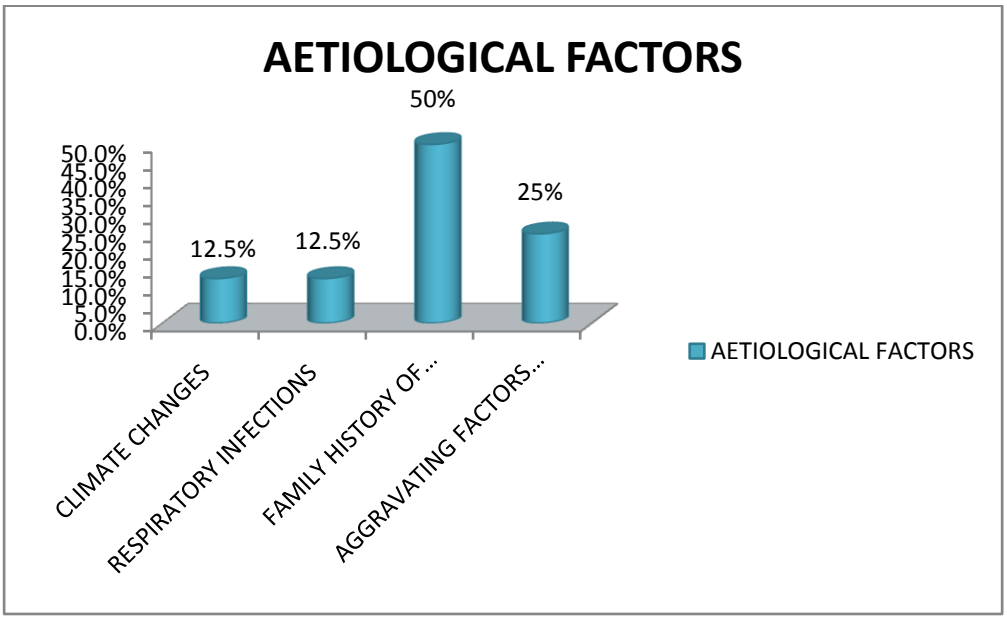


INFERENCE:

Vaathaneer, Pithaneer was observed in 12.5% of cases and Kabaneer was observed in 75% of cases.

12. AETIOLOGICAL FACTORS OF SOOLI KANAM :

S.NO	AETIOLOGICAL FACTORS	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Climate changes	5	12.5%
2.	Respiratory infections	5	12.5 %
3.	Family history of allergic diseases	20	50%
4.	Aggravating factors like inhaled allergens, cool beverage & ice creams	10	25%



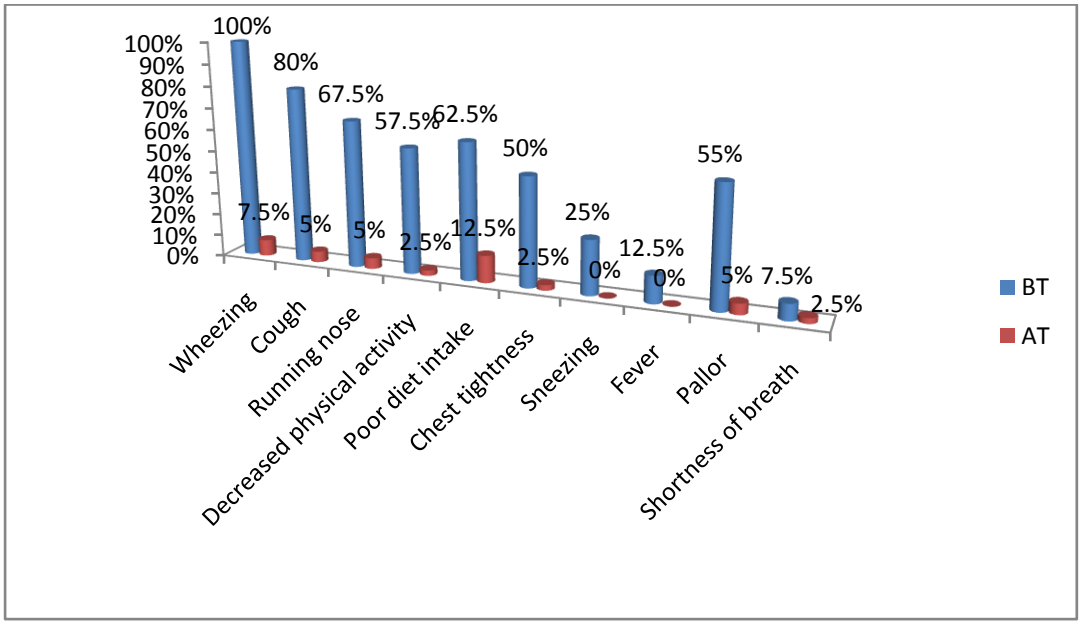
INFERENCE:

From the above table it is evident that climate changes are the main cause of Soolikanam (12.5%). 12.5% of cases have a respiratory infections, 25% of cases have Aggravating factors like inhaled allergens, cool beverage & ice creams and 50% of cases have Family history of allergic diseases.

13. CLINICAL FEATURES – SIGNS & SYMPTOMS :

The signs and symptoms of patients with soolikanam under the clinical study was given below,

S. NO	CLINICAL FEATURES	BEFORE TREATMENT		AFTER TREATMENT	
		NO.OF CASES (OUT OF 40)	%	NO.OF CASES (OUT OF 40)	%
1.	Wheezing	40	100%	3	7.5%
2.	Cough	32	80%	2	5%
3.	Running nose	27	67.5%	2	5%
4.	Decreased physical activity	23	57.5%	1	2.5%
5.	Poor diet intake	25	62.5%	5	12.5%
6.	Chest tightness	20	50%	1	2.5%
ASSOCIATED SYMPTOMS					
7.	Sneezing	10	25%	0	0%
8.	Fever	5	12.5%	0	0%
9.	Pallor	22	55%	2	5%
10.	Shortness of breath	3	7.5%	1	2.5%

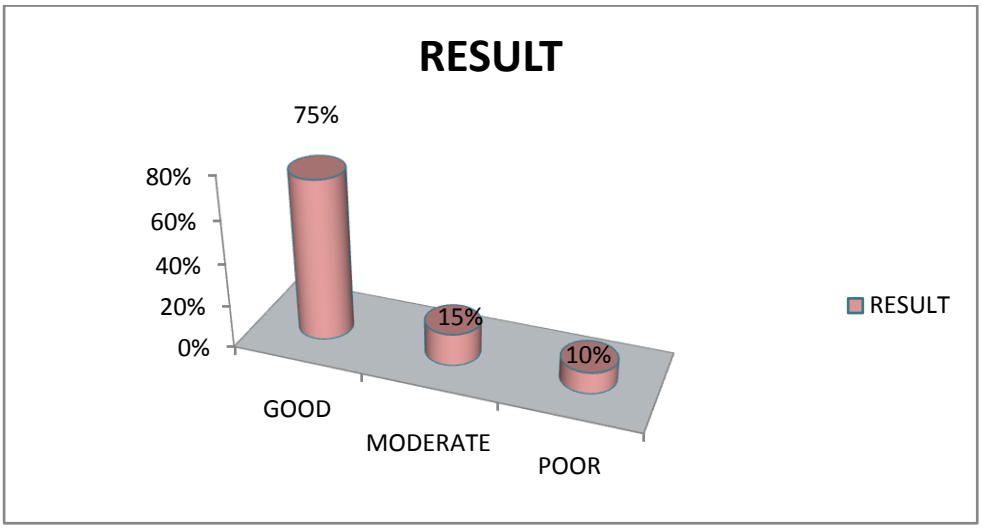


INFERENCE:

Major clinical symptoms reported to be Wheezing (100%) after treatment it was reduced to 7.5%. 80% of cases had cough before treatment, after treatment it was reduced to 5%. 67.5% of cases had running nose, it was reduced to 5%.57.5% of cases had decreased physical activity, it was reduced to 2.5%. 62.5% of cases had poor diet intake, it was reduced to 12.5%. 50% 0f cases had chest tightness, it was reduced to 2.5% & and most of other clinical signs were relieved after treatment.

14. RESULTS:

S.NO	RESULT	NO.OF CASES (OUT OF 40)	PERCENTAGE
1.	Good	30	75%
2.	Moderate	6	15%
3.	Poor	4	10%



INFERENCE:

75% of cases showed good results and 15% of cases showed moderate response, 10% of cases showed poor response, these results are based on the clinical improvement.

OUT PATIENTS RECORD

S.NO	OP.NO	NAME	AGE/SEX	TREATMENT STARTED DATE	REMARKS
1.	6300	Umamaheshwari	4/FC	06.10.16	Good
2.	6897	Abisha	3/FC	17.10.16	Good
3.	4561	Siluvaienjal	3/FC	08.11.16	Good
4.	6695	Rohan	4/MC	16.11.16	Good
5.	7370	Kamalesh	7/MC	19.11.16	Good
6.	9591	Athvaithiram	4/MC	26.11.16	Good
7.	1019	Gowtham	5/MC	02.12.16	Good
8.	1032	Thansika	4/FC	02.12.16	Moderate
9.	1068	Kaviya	7/FC	02.12.16	Good
10.	1106	Abdhulla	5/MC	02.12.16	Good
11.	1010	Bharathpubendhira	2/MC	02.12.16	Moderate
12.	5693	Lakshitha	4/FC	24.12.16	Poor
13.	6637	Kaviya	7/FC	27.12.16	Good
14.	6450	Shesan	7/MC	27.12.16	Good
15.	6885	Mahendra	3/MC	28.12.16	Good
16.	6728	Madhusri	7/FC	28.12.16	Good
17.	6842	Vignesh	7/MC	28.12.16	Moderate
18.	7244	Imanuvel	7/MC	29.12.16	Good
19.	9568	Keerthana	7/FC	07.01.17	Good
20.	9598	Eesha	4/FC	07.01.17	Good
21	811	Harikesh	3/MC	13.01.17	Poor
22	1397	Deepak	4/MC	17.01.17	Good
23	1418	Sivasakthi	4/FC	17.01.17	Moderate
24	2037	Aaathesh	4/MC	19.01.17	Good
25	2258	Harini	3/FC	20.01.17	Moderate
26	2931	Leelathar	6/FC	23.01.17	Good
27	2822	Ebrinjoshal	2/FC	23.01.17	Good
28	2637	Santhoshkumar	6/MC	23.01.17	Good
29	5939	Jeyasuji	4/FC	04.02.17	Good

30	6061	Lavanya	4/FC	04.02.17	Good
31	6768	Mervinansesh	7/MC	07.02.17	Good
32	6850	Bharani	7/MC	07.02.17	Good
33	7810	Pirithvik	2 1/2/MC	08.02.17	Good
34	7297	Harini	4/FC	09.02.17	Good
35	6313	Eethil	5/FC	15.02.17	Poor
36	9874	Nithish	7/MC	18.02.17	Moderate
37	9798	Rajasree	6/FC	18.02.17	Good
38	5120	Abdhulla	4 1/2 /MC	08.03.17	Good
39	6256	Vadivelan	3/MC	13.03.17	Good
40	7116	Yenjal	3/FC	15.03.17	Poor

RY INVESTIGATION REPORT OF THE PATIENTS

(BLOOD INVETIGATIONS)

S.NO	OP.NO	AGE/SEX	TC (BT)	DC (BT)			TC (AT)	DC (AT)			ESR (BT)		ESR (AT)		HB	
				P%	L%	E%		P%	L%	E%	½ hr	1 hr	½ hr	1 hr	BT	AT
1.	6300	4/FC	11600	33	57	10	10700	59	47	4	20	42	8	22	9.2	10
2.	6897	3/FC	6400	44	50	6	6500	55	40	5	10	20	10	15	11.6	11.8
3.	4561	3/FC	9600	50	41	9	9000	53	42	5	15	22	11	12	12.6	12.8
4.	6695	4/MC	9800	55	36	9	9600	49	35	6	15	17	10	15	12.4	12.4
5.	7370	7/MC	6600	46	46	8	6600	47	46	7	3	12	3	12	12.3	13
6.	9591	4/MC	6600	49	43	8	9900	50	47	3	7	18	7	16	11.3	11.3
7.	1019	5/MC	6800	41	52	7	6800	49	47	4	4	12	4	12	12.3	12.3
8.	1032	4/FC	8700	79	17	4	7900	49	47	4	10	18	10	14	12.4	12
9.	1068	7/FC	7700	58	36	6	7200	49	45	6	3	5	3	5	13	13
10.	1106	5/MC	9000	40	54	6	9000	60	35	5	20	25	12	15	10.2	10.2
11.	1010	2/MC	8400	66	29	5	8400	48	49	3	3	10	3	10	15.2	14.6
12.	5693	4/FC	10100	60	35	5	9100	49	36	5	6	15	6	15	12	12.4
13.	6637	7/FC	13400	60	33	7	9800	49	48	3	3	6	3	6	10.9	10.9
14.	6450	7/MC	8600	49	44	7	8600	54	42	4	6	18	6	16	12.7	12.7
15.	6885	3/MC	11500	36	57	7	10200	56	31	6	5	12	5	12	10.8	10.8
16.	6728	7/FC	13700	85	11	4	10700	45	41	4	20	45	10	25	13.1	13.1

17.	6842	7/MC	13700	76	20	4	10700	46	40	4	10	22	9	20	10.8	10.8
18.	7244	7/MC	8700	51	41	8	9000	48	47	5	5	18	6	17	11.3	11.7
19.	9568	7/FC	18000	86	9	5	16000	53	42	5	7	15	6	14	14.7	14.5
20.	9598	4/FC	9700	58	37	5	9900	58	37	5	14	22	10	23	13.6	13.6
21	811	3/MC	8900	42	52	6	9000	64	30	6	5	17	5	17	10.6	10.6
22	1397	4/MC	8000	62	31	7	8500	49	47	4	12	26	10	20	12.6	12.6
23	1418	4/FC	7300	55	40	5	7900	50	45	5	7	18	7	18	10.8	10.8
24	2037	4/MC	5400	59	34	7	6900	50	45	5	10	25	11	22	10.7	11.2
25	2258	3/FC	11000	62	31	7	10900	57	40	3	2	6	2	6	12.7	12.8
26	2931	6/FC	8300	38	56	6	8300	58	38	4	5	20	5	20	12.3	12.3
27	2822	2/FC	14100	68	27	5	11100	48	47	5	17	25	13	23	9	11.1
28	2697	6/MC	6600	47	45	8	6600	47	47	6	5	12	5	12	13.8	13.8
29	5939	4/FC	3700	65	29	6	6700	59	35	6	5	12	5	12	12.6	12.6
30	6061	4/FC	8900	56	37	7	8900	50	47	3	13	20	10	20	13.2	13.2
31	6768	7/MC	11400	70	23	7	11000	60	35	5	7	21	7	21	11.2	11.2
32	6850	7/MC	5700	48	44	8	6700	54	40	6	12	24	12	24	14.3	14.6
33	7180	2 1/2/MC	7400	60	32	8	7400	55	40	5	3	5	3	5	11.5	11.5
34	7297	4/FC	6700	54	38	8	6900	44	52	4	13	20	12	18	13.1	13
35	6313	5/FC	5900	38	52	10	6900	58	36	6	14	30	11	20	10.8	11.9
36	9874	7/MC	12700	65	27	8	10700	47	47	6	7	18	7	18	12	12
37	9798	6/FC	12900	64	27	9	10900	54	42	4	6	18	6	23	13	13
38	5120	4 1/2 /MC	10000	63	28	9	10100	60	35	5	20	28	12	25	13.8	13.8
39	6256	3/MC	9800	55	36	9	9900	50	47	3	5	17	5	19	12.4	12.4
40	7116	3/FC	8800	65	27	8	8900	63	32	5	15	23	11	23	13	13

DISCUSSION

Sooli kanam is a paediatric disease, the clinical features of which are clearly described in various Siddha literatures. This disease most probably correlates with childhood bronchial athma

In this study 40 cases were treated at the post graduate Kuzhathai maruthuvam department. Siddha methods of diagnosis were carried out and recorded in the selection proforma, and the diagnosis was confirmed with the help of modern investigations. The patients were treated with the drug "Athimathura chooranam" are clearly observed. The observations are discussed here under,

1. **DISTRIBUTION ACCORDING TO AGE:**

   - This study indicates that children's under the age group of 4 to 5years (40%) are mostly affected.
   - 35% children are affected in the age group of 6 to 7years.
   - 25% children are affected in the age group of 2 to 3years.

2. **DISTRIBUTION ACCORDING TO SEX:**

   - Among 40 cases 50% were male children and 50% were female children.

3. **DISTRIBUTION ACCORDING TO SOCIO ECONOMIC STATUS:**

   - Among 40 cases, maximum numbers of patients 45% were in low income group, 37.5% were in middle income group and 17.5% were in high income group.
   - The highest incidence occurred in low income group. Because of poverty, malnutrition and unhygienic this disease is more prevalent among the poor.

4. DISTRIBUTION ACCORDING TO PARUVA KAALANGAL :

- Among the 40 cases, highest incidence 55% cases were observed in Munpani kaalam, 30% cases were observed in Pinpani kaalam and 15% of cases were observed in Koothir kaalam.

5. DIET HISTORY:

- According to diet hitory high incidence of cases (80%) was noted in mixed diet and in vegetarian (20%) cases were noted.

6. FAMILY HITORY :

- According to family history 62.5% of the cases had positive family history and 37.5% of the cases had no relavent family history.

The highest incidence of cases had positive family history.

7. DISTRIBUTION ACCORDING TO LANDS:

- Among the selected cases 87.5% of them were from Neithal land and 12.5% of them were from marutham land.
- This is due to the fact that the study was conducted at Chennai. A Neithal land and o majority of the cases were from that land.

8. UYIR THATHUKKAL – VATHAM:

- In vatham, all cases had affected in Pranan, Uthanan, Samanan and Kirukiran (100%). Devathathan was affected in 50%, Viyanan was affected in 45%, Naagan was affected in 37.5%, Abanan was affected in 5%.

9. UYIR THATHUKKAL – PITHAM:

- In pitham, Anilam was affected in 62.5% of cases.
- 55% of cases had affected in Ranjagam, Saathagam.
- Pirasagam was affected in 12.5% of cases.

10. UYIR THATHUKKAL – KABAM:

- In Kabam, Avalambagam was affected in all patients (100%).
- Kilethagam was affected in 62.5% of patients.

11. 7 UDAL KATTUKAL:

- Out of 40 cases 100% of the cases had affected in saaram.
- 65% of cases had affected in senneer.
- 255 of cases had affected in oon.

12. ENVAGAI THERVUGAL:

- According to the study Naa and Sparisam were affected in 30% of cases.
- Vizhi affected in 25% of cases.
- Niram affected in 10% of cases.
- Vatha kabam affected in 80% of cases.
- Vatha pitham affected in 15% of cases.
- Pitha kabam affected in 5% of cases.

13. NEIKURI :

- Among 40 cases Kaba neer was observed in 75% of cases.
- Vaatha neer, Pitha neer was observed in 12.5% of cases.

14. AETIOLOGICAL FACTORS OF SOOLI KANAM :

- Among the 40 cases it is evident that climate changes are the main cause of Sooli kanam (12.5%).
- 12.5% of cases have a respiratory infection.
- 25% of cases have Aggravating factors like inhaled allergens, cool beverage & ice creams.
- 50% of cases have Family history of allergic diseases.

15. CLINICAL FEATURES:

- Major clinical symptoms reported to be Wheezing (100%) after treatment it was reduced to 7.5%. 80% of cases had cough before treatment, after treatment it was reduced to 5%. 67.5% of cases had running nose, it was reduced to 5%. 57.5% of cases had decreased physical activity, it was reduced to 2.5%. 62.5% of cases had poor diet intake, it was reduced to 12.5%. 50% 0f cases had chest tightness, it was reduced to 2.5% & and most of other clinical signs were relieved after treatment.

16. LAB INVESTIGATIONS:

- Routine examination of blood and urine were done before and after treatment.
- In most of the cases (80%) elevated ESR and Eosinophil count was decreased after treatment (90%).

17. BIOCHEMICAL ANALYSIS:

- Bio chemical analysis shows no Acid and Basic radicals.

18. PHARMACOLOGICAL ACTIVITY:

- Pharmacological analysis showed the drug has significant Antihistamine, Bronchodilator and Immuno-modulator activity.

19. PHYSICO CHEMICAL ANALYSIS:

- Loss on drying at 105^0C (%) – 16.7 ± 2.06
- Total Ash (%) – 6.12 ± 3.76
- Acid insoluble Ash – 0.56 ± 0.14
- Water soluble Ah – 1.14 ± 0.19
- Alcohol Soluble Extractive – 20.35 ± 1.53
- Water soluble Extractive – 15.54 ± 1.5
- P^H– 7

20. TOXICITY STUDY OF THE DRUG:

- The acute and sub – acute toxicity study of the trial drug was carried out in wistar albino rats reveals that the drug has no adverse effects, of it is safe to human being.

21. RESULT:

- Satisfactory improvement was reported in 21 days of commencement of treatment. Out of 40 cases 30 cases (75%) showed Good response and also remarkable relief of signs and symptoms.
- Moderate result was observed in 6 cases (15%) with reduction of signs and symptoms.
- In 4 cases the result was poor (10%) a there is no significant improvement of symptoms.

22. STATISTICAL REPORT:

- Since the p value is significant in all clinical features.So there is significant reducing of clinical features among the patients for the treatment of **Sooli Kanam(Chilhood Bronchial asthma)**.Hence it is concluded that the treatment was effectiveand **significant.**

SUMMARY

1. The aim of the study is to assess the efficacy of trial drug "ATHIMATHURA CHOORANAM" for "SOOLIKANAM (CHILDHOOD BRONCHIAL ATHMA)" without any adverse effects.
2. The etiology, pathogenesis, signs and symptoms of Soolikanam have been correlated with that of childhood bronchial asthma with evidence of literature.
3. Clinical diagnosis and selection of cases based on clinical features described in Balavagadam text book and also using questionnaire.
4. The internal medicine chosen for treatment and management of Soolikanam was Athimathurachooranam 500mg, twice a day, after food with honey.
5. The trial drug selection based on its siddha pharmacological action to pacify the deranged vetham, pitham and kabamand also due to its Immunomodulatory, Bronchodilatory and Antihiastamatic effect of the ingrediants.
6. 40 cases were diagnosed with Soolikanam clinically observed for clinical diagnosis, laboratory diagnosis, peak expiratory flow rate during the treatment and the results were dealt in the proforma.
7. Laboratory diagnosis was done by modern methods of examinations.
8. The treatment covers administration of trial drug according to the age and also includes pranayamam.
9. The documentation of observation made during the clinical study showed that the drug is clinically more effective.
10. The biochemical analysis
11. Sterility test by pour plate method of Athimathurachooranam shows no growth / colonies like E-coli, Salmonella, Staphylococcus Aureus and PeudomonasAeruginosa.
12. In the pharmacological analysis, the trial drug Athimathurachooranam had significant Anti-histamine, Bronchodilator and Immunomodulator activity which controlling the airway hyper responsiveness help to improve the patients quality of life.
13. The physico chemical analysis of the trial drug shows the Loss on drying at 105^0C (%) – 16.7 ± 2.06, Total Ash (%) – 6.12 ± 3.76, Acid insoluble Ash – 0.56 ± 0.14, Water soluble Ah – 1.14 ± 0.19, Alcohol Soluble Extractive –

20.35 ± 1.53, Water soluble Extractive – 15.54 ± 1.5, P^H – 7, So it shows the safe and effectiveness of the drug.

With these benefits of ATHIMATHURA CHOORANAM is more effective drug for SOOLIKANAM (CHILDHOOD BRONCHIAL ATHMA).

CONCLUSION

Bronchial asthma is a heterogeneous pulmonary disorder characterized by recurrent episodes of cough, breathlessness and wheezing, which may resolve spontaneously or after the use of bronchodilator medication.

Asthma is the leading chronic disease among children in most industrialized countries, increasing prevalence and its impact in reducing the quality of life in children.

In this clinical study Athimathura chooranam were taken as Internal medicine respectively. Soolikanam (Bronchial asthma) occurs due to alteration in Kaba kutram. In Athimathura chooranam most of the drugs have Kaarpu suvai, Kaarpu suvai are decrease the Kaba kuttram. So I choose this drug is more effective to reduce the Kaba kuttram in Bronchial asthma.

The treatment of Soolikanam with Athimathura chooranam has showed Good response with no adverse effect and ensure to be safe, effective and simple to administration. The drugs have antihistamine, Bronchodilator and anti-microbial activity.

Statistically it is concluded that the treatment was effective and significant.

Clinical results were found to be good improvement was found in 75% of cases, moderate in 15% of cases and Poor in 10% of cases.

The clinical trial conducted in selected patients was satisfactory and encouraging.

ANNEXURE

III. Bio Chemical analysis of trial medicine Athimathura chooranam for Soolikanam (Childhood bronchial asthma)

Preparation of sodium carbonate extract

2 gm of Athimathura chooranam sample is mixed with 5gm of sodium carbonate and taken in a 100 ml beaker and 20 ml of distilled water is added. The solution is boiled for 10 minutes,cooled and then filtered. The filtrate is called sodium carbonate extract.

S.No	Experiment	Observation	Inference
Test for acid radicals			
1A.	**Test for sulphate:** 2ml of the above prepared extract is taken in a test tube.to this add 2ml of 4 % Ammonium oxalate solution.	Absence of white precipitate	Absent
B.	2ml of extract is added with 2ml of dilute Hydrochloric acid until the effervescence ceases off.Then 2ml Barium chloride solution is added.	Absence of white precipitate	Absent
2.	**Test for chloride :** 2ml of extract is added with dilute Nitric acid till the effervescence ceases.Then 2ml of silver nitrate solution is added.	Absence of white precipitate	Absent
3.	**Test for phosphate:** 2 ml of the extract is treated with 2 ml of Ammonium molybdate solution and 2 ml of	Absence of Yellow precipitate	Absent

	concentrated nitric acid.		
4.	**Test for carbonate:** 2 ml of the extract is treated with 2 ml of Magnesium sulphate solution.	Absence of white precipitate	Absent
5.	**Test for sulphide:** 1 gm of the substance is treated with 2 ml of concentrated Hydrochloric acid.	Absence of Rotten egg smelling	Absent
6.	**Test for Fluoride and oxalate :** 2ml of extract is added with dilute Acetic acid and 2 ml of Calcium chloride solution and heated.	Absence of white precipitate	Absent
7.	**Test for Borate :** 2 pinches of the substance is made into paste by using Sulphuric acid and alcohol (95%) and introduced into the blue flame.	Absence of Green tinged flame	Absent

TEST FOR BASIC RADICALS			
8.	**Test for lead:** 2 ml of the extract is added with 2 ml of Potassium iodide solution.	Absence of yellow precipitate.	Absent
9.	**Test for copper:** One pinch of substance is made into paste with concentrated Hydrochloric acid in a watch glass and introduced into the non-luminous part of the flame.	Absence of Bluish green colored flame	Absent
10.	**Test for aluminium:** To the 2 ml of extract Sodium hydroxide solution is added in drops in excess.	Absence of whiteprecipitate	Absent
11.	**Test for iron:** To the 2 ml of extract 2ml of Ammonium thiocyanate solution and 2ml of concentrated Nitric acid is added.	Absence of Blood red colour	Absent
12.	**Test for zinc:** To the 2 ml of extract Sodium hydroxide solution is added in drops in excess.	Absence of green tinged flame.	Absent
13.	**Test for calcium:** To the 2 ml of extract Ammonium oxalate solution solution is added.	Absence of white precipitate	Absent

14.	**Test for magnesium:** To the 2 ml of extract Sodium hydroxide solution is added in drops in excess.	Absence of white precipitate	Absent
15.	**Test for ammonium:** To the 2 ml of extract few ml of Nessler's reagent and excess of Sodium hydroxide solution are added.	Absence of white precipitate	Absent
16.	**Test for sodium:** 2 pinches of the substance is made into paste by using Hydrochloric acid and introduced into the blue flame	Absence of white precipitate	Absent
17.	**Test for mercury:** 2 ml of extract is treated with 2ml of Sodium hydroxide solution.	Absence of Yellow precipitate	Absent
18.	**Test for arsenic:** 2 ml of extract is treated with 2ml of Silver nitrate solution.	Absence of white precipitate	Absent
19.	**Test for starch:** 2 ml of extracts treated with weak iodine solution.	Absence of white precipitate	Absent
20.	**Test for reducing sugar** 5ml of Benedicts qualitative solution is taken in a test tube and allowed to boil for 2 minutes and added 10 drops of the extract and again boiled for 2minutes.The colour changes are noted.	Absence of white precipitate	Absent

21.	**Test for alkaloids :** 2 ml of the extract is treated with 2ml of Potassium iodide solution.	Absence of white precipitate	Absent

RESULT

The given sampleAthimathura chooram contains no Basic and Acid radicals.

PHYSICOCHEMICAL EVALUATION

Project ID : NRS/AS/0021/01/2017

Institute : Govt Siddha Medical College, Chennai

Sample Name : AthimathuraChooranam

Sample ID : AC

Percentage Loss on Drying

10gm of test drug was accurately weighed in evaporating dish .The sample was dried at 105^{o}C for 5 hours and then weighed.

Percentage loss in drying = Loss of weight of sample/ Wt of the sample X 100

Determination of Total Ash

3 g of test drug was accurately weighed in silica dish and incinerated at the furnace a temperature 400 ºC until it turns white in color which indicates absence of carbon. Percentage of total ash will be calculated with reference to the weight of air-dried drug.

Total Ash = Weight of Ash/Wt of the Crude drug taken X 100

Determination of Acid Insoluble Ash

The ash obtained by total ash test will be boiled with 25 ml of dilute hydrochloric acid for 6mins. Then the insoluble matter is collected in crucible and will be washed with hot water and ignited to constant weight. Percentage of acid insoluble ash will be calculated with reference to the weight of air-dried ash.

Acid insoluble Ash = Weight of Ash/Wt of the Crude drug taken X 100

Determination of Water Soluble Ash

The ash obtained by total ash test will be boiled with 25 ml of water for 5 mins. The insoluble matter is collected in crucible and will be washed with hot water, and ignite for 15mins at a temperature not exceeding 450ºC. Weight of the insoluble matter will be subtracted from the weight of the ash; the difference in weight

represents the water soluble ash. Calculate the percentage of water-soluble ash with reference to the air-dried drug.

Water Soluble Ash = Weight of Ash/Wt of the Crude drug taken X 100

Determination of Alcohol Soluble Extractive

About 5 g of test sample will be macerated with 100 ml of Alcohol in a closed flask for twenty-four hours, shaking frequently during six hours and allowing to stand for eighteen hours. Filter rapidly, taking precautions against loss of solvent, evaporate 25 ml of the filtrate to dryness in a tared flat bottomed shallow dish, and dry at 105ºC, to constant weight and weigh. Calculate the percentage of alcohol-soluble extractive with reference to the air-dried drug.

Alcohol sol extract = Weight of Extract/ Wt of the Sample taken X 100

Determination of Water Soluble Extractive

About 5 g of the test sample will be macerated with 100 ml of chloroform water in a closed flask for twenty-four hours, shaking frequently during six hours and allowing to stand and for eighteen hours. Filter rapidly, taking precautions against loss of solvent, evaporate 25 ml of the filtrate to dryness in a tared flat bottomed shallow dish, and dry at 105ºC, to constant weight and weigh. Calculate the percentage of water-soluble extractive with reference to the air-dried drug.

Water soluble extract = Weight of Extract/ Wt of the Sample taken X 100

Determination of pH

About 5 g of test sample will be dissolved in 25ml of distilled water and filtered the resultant solution is allowed to stand for 30 mins and the subjected to pH evaluation

Name	Dr. P.CHAKRAVARTHI
IAEC	SU/CLATR/IAEC/VII/044/2016
Name of the Formulation	*Athimathura chooranam*
Abbreviation	AC

Final Test report

S.No	Parameter	Mean (n=3) SD
1.	***Loss on Drying at 105 °C (%)***	16.7 ± 2.06
2.	***Total Ash (%)***	6.12 ± 3.76
3.	***Acid insoluble Ash (%)***	0.56 ± 0.14
4.	***Water Soluble Ash (%)***	**1.14 ± 0.19**
5.	***Alcohol Soluble Extractive (%)***	20.35 ± 1.53
6.	***Water soluble Extractive (%)***	15.54 ± 1.5
7.	***PH***	7

PHYTOCHEMICAL ANALYSIS

Sample Preparation

Athimathurachooranam(AC) was extracted with hydro alcoholic solvent (Methanol: water) 6:4 and the extract was subjected to the following analysis

1) **Test for alkaloids:**

   Mayer's Test: To the extract, 2ml of mayer's reagent was added, a dull white precipitate revealed the presence of alkaloids.

2) **Test for coumarins:**

   To 1 ml of extract, 1 ml of 10% sodium hydroxide was added. The presence of coumarins is indicated by the formation of yellow color.

3) **Test for saponins:**

   To 1 ml of the extract, 5 ml of water was added and the tube was shaken vigorously. Copious lather formation indicates the presence of Saponins.

4) **Test for tannins:**

   To the extract, ferric chloride was added, formation of a dark blue or greenish black color showed the presence of tannins.

5) **Test for glycosides- Borntrager's Test**

   Test drug is hydrolysed with concentrated hydrochloric acid for 2 hours on a water bath, filtered and the hydrolysate is subjected to the following tests. To 2 ml of filtered hydrolysate, 3 ml of choloroform is added and shaken, choloroform layer is separated and 10% ammomia solution is added to it. Pink colour indicates presence of glycosides.

6) **Test for flavonoids:**

   To 0.1ml of the test sample about 5 ml of dilute ammonia solution were been added followed by addition of few drops of conc. Sulfuric acid. Appearance of yellow color indicates the presence of Flavonoids.

7) **Test for phenols:**

Lead acetate test: The extract was taken; 3 ml of 10% lead acetate solution was added. A bulky white precipitate indicated the presence of phenolic compounds.

8) **Test for cardial glycosides:**

Keller-Killani Test: Plant extract treated with 2 ml glacial acetic acid containing a drop of FeCl3 .A brown colour ring indicates the presence of positive test.

9) **Test for steroids:**

To the test solution 2ml of chloroform was added with few drops of conc. Sulphuric acid (3ml), and shaken well. The upper layer in the test tube was turns into red and sulphuric acid layer showed yellow with green fluorescence. It showed the presence of steroids.

10) **Test for Quinones:**

The extracts were treated separately with Alc. KOH solution. Appearance of colors ranging from red to blue indicates the presence of Quinones.

11) **Test forCyanins**

A. Aanthocyanin:

To 2 ml of the leaf extract, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100□C. Formation of bluish green colour indicates the presence of anthocyanin.

B.Betacyanin:

To 2 ml of the leaf extract, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100^{O}C. Formation of yellow colour indicates the presence of betacyanin.

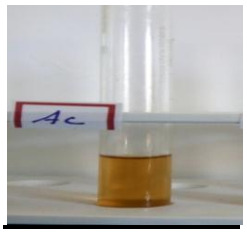
12) **Test for Carbohydrates - Benedict's test**

To 0.5 ml of test drug about 0.5 ml of Benedic's reagent is added. The mixture is heated on a boiling water bath for 2 minutes. A characteristic coloured precipitate indicates the presence of sugar.

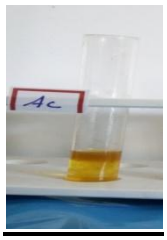
13) Test for terpenoids:

Salkowski test: 5ml of extract was mixed in 2ml of chloroform, and concentrated sulphuric acid was carefully added to form a layer. A reddish brown colouration of the interface indicates the presence of terpenoids.

RESULTS



Test for Alkaloids

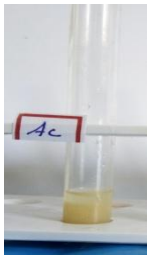


Test for Coumarins

Test for Tanins

Test for Glycosides

Test for Flavonoids



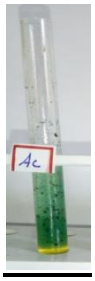
Test for Phenols

Test for Cardiac Glycosides

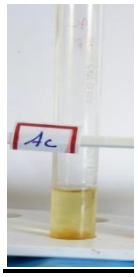
Test for Steroids

Test for Terpenoids

Test for Quinones



PROTEINS



Test for Anthocyanins

Result Analysis

PHYTOCOMPONENTS	AC
ALKALOIDS	-
FLAVONOIDS	+
GLYCOSIDES	+
STEROIDS	-
CARBOHYDRATES	-
TRITEREPNOIDS	+
COUMARINS	+
PHENOLS	+
CARDIAC GLYCOSIDES	+
TANNINS	-
SAPONINS	+
PROTEINS	-
ANTHOCYANIN	-
BETACYANIN	+
QUINONES	-

+ Indicates positive
- Indicates Negative

Reference

Brain KR, Turner TD. The Practical Evaluation of Phytopharmaceuticals. Bristol:Wright- Scientechnica; 1975:36-45

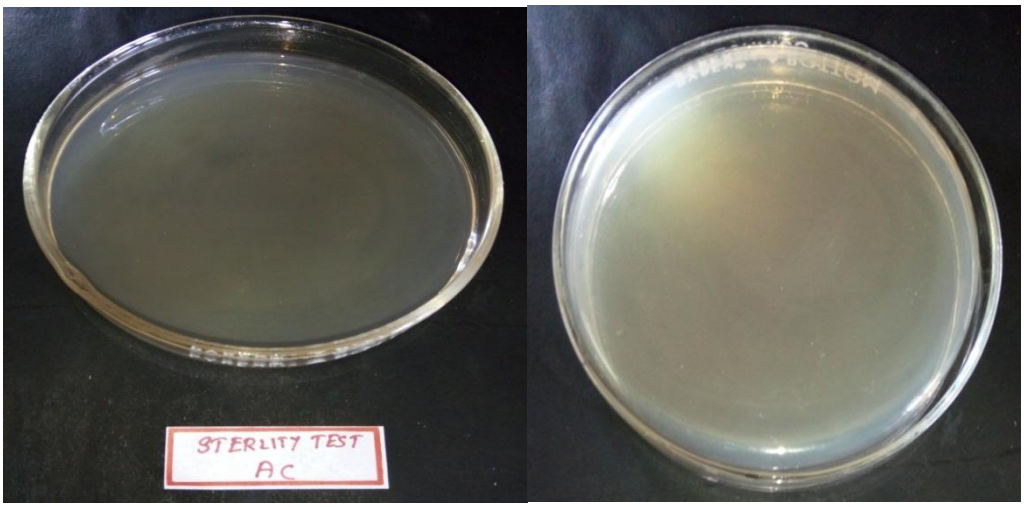
STERILITY TEST BY POUR PLATE METHOD

Objective

The pour plate techniques were adopted to determine the sterility of the product. Contaminated / un sterile sample (formulation) when come in contact with the nutrition rich medium it promotes the growth of the organism and after stipulated period of incubation the growth of the organism was identified by characteristic pattern of colonies. The colonies are referred to as Colony Forming Units (CFUs).

Methodology

About 1ml of the test sample was inoculated in sterile petri dish to which about 15 mL of molten agar 45^{o}C were added. Agar and sample were mixed thoroughly by tilting and swirling the dish. Agar was allowed to completely gel without disturbing it. (about 10 minutes). Plates were then inverted and incubated at 37^{o} C for 24-48 hours. Grown colonies of organism was then counted and calculated for CFU.



Observation

No growth was observed after incubation period. Reveals the absence of specific pathogen

Result

No growth / colonies were observed in any of the plates inoculates with the test sample.

Test	Specification	Result	Method
E-coli	Absent	Absent	As per AYUSH specification
Salmonella	Absent	Absent	
Staphylococcus Aureus	Absent	Absent	
Pseudomonas Aeruginosa	Absent	Absent	

TOXICITY STUDY

PROJECT REPORT ON TOXICITY PROFILING OF ATHIMATHUR CHOORANAM

ACUTE TOXICITY STUDY

Acute toxicity study of the study drug *Athimathura chooranam* was carried out as per OECD guideline (Organization for Economic Co-operation and Development) Guideline-423.

ANIMAL:

Healthy adult Wistar albino rat weighing between 170-200 g were used for the study. The animals were housed in poly propylene cages and were kept in well ventilated with 100% fresh air by air handling unit (AHU). A 12 light / dark cycle were maintained .Room temperature was maintained between 22 $\pm$ 2^0 Cand relative humidity 50–65%. They were provided with food (Sai feeds, Bangalore, India) and water *ad libitum*. All the animals were acclimatized to the laboratory for 7 days prior to the start of the study.

The experimental protocol was approved by The Institutional Animal Ethics Committee of Sathyabama University, Chennai, Tamil Nadu, India.

ACUTE TOXICITY STUDY:

Acute toxicity study will be carried out in accordance with OECD guideline 423 [1]. The animals were fasted overnight with free access to water. The study was conducted with single oral dose administration of *Athimathura chooranam*.

IAEC SU/CLATR/IAEC/VII/044/2016

ANIMAL GROUPING:

One group consist of 6 female rats were used for this study. The dose utilized for evaluation of acute toxicity study is about 2000 mg/kg higher than that of the therapeutic dose.

ANIMAL GROUPING:

GROUP I : Animals received Test drug 2000 mg/kg (p.o)

The animals were fasted overnight (12- 16 hrs) with free access to water. The study was conducted with single oral administration of study drug*Athimathura chooranam* 2000mg/kg (p.o). The animals were observed continuously for first 72 h and then 14 days for emerging signs of behavioral changes, body weight changes and for mortality.

Occurrence of toxicity in animals were observed continuously for the first 4 to 24 h and observed periodically for the next 14 days. Observation includes the change in skin, fur, eyes and mucus membrane. Appearance of C.N.S,C.V.S and A.N.S related toxicity such as tremors, convulsions, sedation, steric behavior, respiratory distress, cardiovascular collapse, response to sensory stimuli, salivation, diarrhea, lethargy, sleep, coma and mortality were observed with special attention.

Body weight was recorded periodically. At the end of the experiment all animals were subjected for gross necropsy and observed for pathological changes.

SUB-ACUTE TOXICITY STUDY

Sub-acute toxicity study was carried out as per OECD guidelines Guideline-407 [2].

ANIMALS:

Healthy adult Wistar albino rat weighing between 170-200 g were used for the study. The animals were housed in poly propylene cages and were kept in well ventilated with 100% fresh air by air handling unit (AHU). A 12 light / dark cycle were maintained .Room temperature was maintained between 22 $\pm$ 2^{o} Cand relative humidity 50–65%. They were provided with food (Sai feeds, Bangalore, India) and water *ad libitum*. All the animals were acclimatized to the laboratory for 7 days prior to the start of the study.

The experimental protocol was approved by The Institutional Animal Ethics Committee of Sathyabama University, Chennai, Tamil Nadu, India.

ANIMAL GROUPING:

Animals were divided into three groups of 06 animals each consist of 3 male and 3 female rats.

GROUP I : Animals received saline 5 ml/kg b.w (p.o)

GROUP II : Animals received low dose of test drug 200 mg/kg (p.o)

GROUP III : Animals received high dose of test drug 400 mg/kg (p.o)

The animals were randomly divided into control group and drug treated groups for two different doses viz. low dose (200 mg/kg b.w) and high dose (400 mg/kg b.w).

The animals were administrated with the study drug once daily for 28 days. The animals in group I (control group) received normal saline 5 ml/kg b.w. The animals in group II received low dose of *Athimathura chooranam* 200 mg/kg b.w (p.o) and group III received high dose of *Athimathura chooranam* 400 mg/kg b.w (p.o).

The rats were weighed periodically and observed for signs of toxicity pertains to C.N.S, C.V.S, A.N.S including behavioral changes, food - water intake and morphological changes. At the end of 28^{th} day, the animals were fasted for overnight with free access to water. On 29^{th} day the animals were sacrificed with excess anesthesia. Blood samples were collected from aorta and stored in EDTA (ethylenediamine –tetra actate) for Hematological analysis and for serum generation for biochemical analysis.

The vital organs including heart, brain, lungs, spleen, kidneys, liver, stomach, testes, and ovary were harvested and carefully examined for gross lesions. The organs were preserved in 10% formalin for histopathological assessment and interpretation.

HEMATOLOGICAL ANALYSIS:

Blood samples were analyzed using established procedures and automated Bayer Hematology analyzer. Parameters evaluated include Packed Cell Volume (PCV), Red Blood Cells (RBC) count, White blood cell count (WBC), Platelet Count, Hemoglobin (Hb), Mean cell Haemoglobin Concentration (MCHC), Mean Red Cell

Volume (MCV), Mean Cell Hemoglobin (MCH), Mean platelet volume (MPV), Neutrophils, Eosinophil's, Basophils, Lymphocytes and Monocytes.

BIOCHEMICAL ANALYSIS [3]:

Serum samples were analyzed for High Density Lipoprotein (HDL), Low density Lipoprotein (LDL) , Very low density Lipoprotein (VLDL) , Triglycerides (TGL), Total Cholesterol , Blood urea nitrogen (BUN), Creatinine, Albumin, Total Protein, Glucose, Uric acid, Aspartate Transaminase (AST), Alanine amino Transaminase (ALT) and Alkaline Phosphatase (ALP) using Mind ray auto analyzer model BS 120.

HISTOPATHOLOGICAL EVALUATION [4]:

Organs included of heart, brain, lungs, spleen, kidneys, liver, stomach, testes and ovary. Histological slides of organs were made and observed under the microscope. The pathological observations of cross section of these organs were performed on gross and microscopic bases. Histological examinations were performed on the preserved tissues with particular emphasis on those which showed gross pathological changes.

STATISTICAL ANALYSIS:

The statistical analysis was carried by one way ANOVA (GRAPH PAD PRISM 5 computer program). Results were expressed as mean ± standard error .A statistical comparison was carried out using the Dunnet's test for the control and treatment group.

FECAL PELLET ANALYSIS

METHODOLOGY

Rats of control and treatment group were allowed to explore to open field on clean and sterile Stainless steel tray. The collected pellets were analyzed for consistency, color, Shape, Presence of blood cells etc

Acute Toxicity Study

Sub-Acute Toxicity Study			
Analysis	**Group I**	**Group II**	**Group III**
Consistency	Soft	Soft	Soft
Shape	Oblong	Round Head	Round Head
Colour	Brownish green	Brownish green	Brownish green
Mucous Shedding	Absence	Absence	Absence
Blood Cells	Absent	Absent	Absent
Signs of Infection	None Observed	None Observed	None Observed

Analysis	**Group I**
Consistency	Soft
Shape	Oblong
Colour	Dark Brown
Mucous Shedding	Absence
Blood Cells	Absent
Signs of Infection	None Observed

MUSCLE GRIP STRENGTH ANALYSIS

The grip strength test is a simple non-invasive method designed to evaluate rat muscle force in vivo. Rats of control and drug treated group was allowed to hold the pull bar with both the hind limbs firmly then the animal was gently pulled back with the tail until the animal lost the grip toward the bar. The procedure was repeated to get the average value. Muscle grip ness of the drug treated group was compared to that of the control rat to ensure the change in coordination.

METABOLIC CAGE FOR URINE COLLECTION

Rat of control and treatment group was placed individually in metabolic cage with free access to feed and water. Urine dropping from the animal was collected using specialized wire mesh system fixed at the base of the cage having provision to trap the fecal pellet mixed with urine sample. The collected urine sample was subjected to analysis with respect to colour, pH, glucose, ketone bodies, pus and blood cells.

RESULTS

Assessment of clinical signs in rats treated with *Athimathura chooranam* on Acute toxicity study

Acute	
Parameter	**Group I**
Clinical Signs Parameters for the duration of 14 days	**Test Drug 2000mg/kg**
Number of animals observed	6 Female
Lacrimation	Absence
Salivation	Absence
Animal appearance	Normal
Tonic Movement	Absence
Clonic Movement	Absence
Laxative action	Absence
Touch Response	Normal
Response to Sound	Normal Response
Response to Light	Normal Response
Mobility	Normal Response
Respiratory Distress	Nil
Skin Color	Normal
Stereotype behavior	Absence
Piloerection	Absence
Limb Paralysis	Absence
Posture	Normal

Open field behavior	Normal
Giat Balancing	Normal
Freezing Behaviour	Absent
Sings of Stress and Anxiety	None Observed
Muscular coordination	Normal
Muscle grip	Normal

Sedation **Social Behavior**	Absence Normal
Urine Analysis	No Abnormality
Urine Colour	Yellowish
Urine pH	6
Urine -Glucose	Absence
Urine -Ketones	Absence
Urine- Bilirubin	Absence
Urine-Blood Cells	Negative
Urine - Pus cells	Negative
Mortality	Nil

Quantitative data on the body weight of rats treated with *Athimathura chooranam* in Acute toxicity study

Group I	**Before Treatment Weight in Gms**	**After Treatment Weight in Gms**
Mean	179.5	188.8
Std. Deviation	4.80	5.776
Std. Error	1.962	2.358

Values are mean ± S.D (n = 6 per group). Statistical significance carried out using one way ANOVA followed by Dunnett's test.

Assessment of clinical signs in rats treated with *Athimathura chooranam* on Sub-Acute toxicity study

SUB ACUTE			
Parameters	**Group I**	**Group II**	**Group III**
Clinical Signs Parameters for the duration of 28 days	Control	Test Drug 200mg/kg	Test Drug 400mg/kg
Number of animals observed	3 Males and 3Females	3 Males and 3Females	3 Males and 3Females
Lacrimation	Absence	Absence	Absence
Salivation	Absence	Absence	Absence
Animal appearance	Normal	Normal	Normal
Tonic Movement	Absence	Absence	Absence
Clonic Movement	Absence	Absence	Absence
Laxative action	Absence	Absence	Absence
Touch Response	Normal	Normal	Normal
Response to Sound	Normal Response	Normal Response	Normal Response
Response to Light	Normal Response	Normal Response	Normal Response
Mobility	Normal Response	Normal Response	Normal Response
Respiratory Distress	Nil	Nil	Nil
Skin Color	Normal	Normal	Normal
Stereotype behavior	Absence	Absence	Absence
Piloerection	Absence	Absence	Absence
Limb Paralysis	Absence	Absence	Absence
Posture	Normal	Normal	Normal
Open field behavior	Normal	Normal	Normal
Giat Balancing	Normal	Normal	Normal
Freezing Behaviour	Absent	Absent	Absent

Sings of Stress and Anxiety	None Observed	None Observed	None Observed
Muscular coordination	Normal	Normal	Normal
Muscle grip	Normal	Normal	Normal
Sedation	Absence	Absence	Absence
Social Behavior	Normal	Normal	Normal
Urine Analysis	No Abnormality	No Abnormality	No Abnormality
Urine Colour	Yellowish	Yellowish	Yellowish
Urine pH	6	7	7
Urine - Glucose	Absence	Absence	Absence
Urine - Ketones	Absence	Absence	Absence
Urine-Bilirubin	Absence	Absence	Absence
Urine-Blood Cells	Negative	Negative	Negative
Urine - Pus cells	Negative	Negative	Negative
Mortality	Nil	Nil	Nil

Effect of *Athimathura chooranam*on Body weight of Rats in Sub-acute toxicity study

Group I	**Before Treatment Weight in Gms**	**After Treatment Weight in Gms**
Mean	184	195.5
Std. Deviation	5.177	5.958
Std. Error	2.113	2.432
Group II	**Before Treatment Weight in Gms**	**After Treatment Weight in Gms**
Mean	181	188.5
Std. Deviation	6.812	6.686
Std. Error	2.781	2.729

Group III	Before Treatment	After Treatment Weight in Gms
Mean	187	196.2
Std. Deviation	3.578	4.75
Std. Error	1.461	1.939

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

Quantitative data on the food and water intake of rats treated with *Athimathura chooranam* for 28 days in Sub-acute toxicity study

GROUP I	**Food intake**	**Water intake**
Mean	17.42	22.25
Std. Deviation	3.573	6.437
Std. Error	1.787	3.219
GROUP II	**Food intake**	**Water intake**
Mean	15.92	27.83
Std. Deviation	1.258	4.238
Std. Error	0.6292	2.119
GROUP III	**Food intake**	**Water intake**
Mean	17.75	28.67
Std. Deviation	1.912	3.127
Std. Error	0.9562	1.563

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

Effect of *Athimathura chooranam* on Haematology profile of rats in sub-acute toxicity study.

GROUP I	**WBC count (×103 µl)**	**RBC ($\times 10^6$ µl)**	**PLT ($\times 10^3$ µl)**	**MCV (fl)**	**MCH (pg)**	**MCHC (g/dl)**	**HGB (g/dl)**
Mean	9.933	6.6	679.8	58.83	19.22	32.75	13.27
Std. Deviation	1.483	1.103	174.3	6.218	2.232	1.299	1.089
Std. Error	0.6053	0.4502	71.15	2.538	0.9112	0.5303	0.4447
GROUP II	**WBC count (×103 µl)**	**RBC ($\times 10^6$ µl)**	**PLT ($\times 10^3$ µl)**	**MCV (fl)**	**MCH (pg)**	**MCHC (g/dl)**	**HGB (g/dl)**
Mean	11.32	6.633	967.7	62.73	19.27	32.73	13.8
Std. Deviation	2.912	0.8524	132.8	5.742	2.374	1.129	0.998
Std. Error	1.189	0.348	54.23	2.344	0.9691	0.4609	0.4074
GROUP III	**WBC count (×103 µl)**	**RBC ($\times 10^6$ µl)**	**PLT ($\times 10^3$ µl)**	**MCV (fl)**	**MCH (pg)**	**MCHC (g/dl)**	**HGB (g/dl)**
Mean	11.2	5.567	943.8	62.52	20.18	32.4	15.12
Std. Deviation	1.051	0.3983	336	4.371	2.666	2.018	1.023
Std. Error	0.429	0.1626	137.2	1.784	1.089	0.8238	0.4175

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

Effect of *Athimathura chooranam* on Haematology profile of rats in sub-acute toxicity study.

GROUP I	**Lymph (%)**	**Mon (%)**	**Neutrophils 10^3/mm3**	**Eosinophils (%)**	**Basophils (%)**	**MPV (fl)**
Mean	80.92	3.6	2.5	1.667	0.1667	5.833
Std. Deviation	6.151	0.9033	0.6033	0.2251	0.4082	1.14
Std. Error	2.511	0.3688	0.2463	0.09189	0.1667	0.4652
GROUP II	**Lymph (%)**	**Mon (%)**	**Neutrophils 10^3/mm3**	**Eosinophils (%)**	**Basophils (%)**	**MPV (fl)**
Mean	69.47	3.333	2.433	1.483	0.5	5.433
Std. Deviation	8.468	0.814	0.709	0.2317	0.5477	1.111
Std. Error	3.457	0.3323	0.2894	0.09458	0.2236	0.4536
GROUP III	**Lymph (%)**	**Mon (%)**	**Neutrophils 10^3/mm3**	**Eosinophils (%)**	**Basophils (%)**	**MPV (fl)**
Mean	84.57	3.517	2.533	1.433	0.3333	6.4
Std. Deviation	7.382	1.311	0.6861	0.2251	0.5164	0.8
Std. Error	3.014	0.535	0.2801	0.09189	0.2108	0.3266

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

Effect of *Athimathura chooranam* on Serum Bio-chemistry profile of rats in sub-acute toxicity study

GROUP I	**Blood sugar (mg/dl)**	**BUN (mg/dl)**	**Serum creatinine (mg/dl)**	**Serum total cholesterol (mg/dl)**	**Serum triglycerides level (mg/dl)**	**Serum HDL cholesterol (mg/dl)**	**Serum LDL cholesterol (mg/dl)**	**Serum VLDL cholesterol (mg/dl)**
Mean	77	18.83	0.6833	117	74.33	69.17	31.33	16.45
Std. Deviation	6.066	2.317	0.1722	4.942	5.888	3.545	5.007	2.971
Std. Error	2.477	0.9458	0.07032	2.018	2.404	1.447	2.044	1.213
GROUP II	**Blood sugar (mg/dl)**	**BUN (mg/dl)**	**Serum creatinine (mg/dl)**	**Serum total cholesterol (mg/dl)**	**Serum triglycerides level (mg/dl)**	**Serum HDL cholesterol (mg/dl)**	**Serum LDL cholesterol (mg/dl)**	**Serum VLDL cholesterol (mg/dl)**
Mean	81.83	17.67	0.8	118	93.33	65.17	35.83	17
Std. Deviation	16.09	2.733	0.2	12.24	9.564	6.338	11.02	2.309
Std. Error	6.57	1.116	0.08165	4.996	3.904	2.587	4.498	0.9427
GROUP III	**Blood sugar (mg/dl)**	**BUN (mg/dl)**	**Serum creatinine (mg/dl)**	**Serum total cholesterol (mg/dl)**	**Serum triglycerides level (mg/dl)**	**Serum HDL cholesterol (mg/dl)**	**Serum LDL cholesterol (mg/dl)**	**Serum VLDL cholesterol (mg/dl)**
Mean	79	15.83	0.7167	116.2	76.33	60.5	40.33	15.38
Std. Deviation	13.34	3.92	0.1941	8.908	8.14	7.969	12.06	2.304
Std. Error	5.447	1.6	0.07923	3.637	3.323	3.253	4.924	0.9407

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

Effect of *Athimathura chooranam* on Serum Bio-chemistry profile of rats in sub-acute toxicity study

GROUP I	**Serum total protein (g/dl)**	**Serum albumin (g/dl)**	**(AST) (IU/ml)**	**(ALT) (IU/L)**	**(ALP) (IU/L)**
Mean	6.35	3.6	102.3	36.5	112
Std. Deviation	0.9995	0.08944	13.87	7.714	15.47
Std. Error	0.408	0.03651	5.661	3.149	6.314
GROUP II	**Serum total protein (g/dl)**	**Serum albumin (g/dl)**	**(AST) (IU/ml)**	**(ALT) (IU/L)**	**(ALP) (IU/L)**
Mean	6.4	3.733	98.5	27.33	116.2
Std. Deviation	0.9839	0.5574	13.28	10.35	19.87
Std. Error	0.4017	0.2275	5.421	4.224	8.113
GROUP III	**Serum total protein (g/dl)**	**Serum albumin (g/dl)**	**(AST) (IU/ml)**	**(ALT) (IU/L)**	**(ALP) (IU/L)**
Mean	5.95	3.7	94.5	22.33	126.5
Std. Deviation	0.8803	0.498	18.44	4.179	21.57
Std. Error	0.3594	0.2033	7.527	1.706	8.804

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females). Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

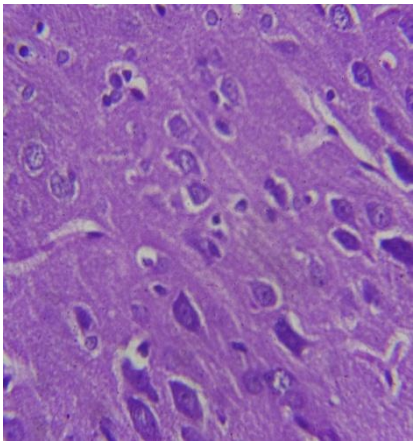
Quantitative data on absolute organ weight of rats treated with *Athimathura chooranam*for 28 days in Sub-acute toxicity study.

GROUP I	**HEART (gms)**	**LIVER (gms)**	**KIDNEYS (gms)**	**SPLEEN (gms)**	**BRAIN (gms)**	**LUNG (gms)**	**STOMACH (gms)**	**TESTES (gms)**	**UTERUS & OVARY (gms)**
Mean	0.7683	5.948	1.617	0.5667	1.483	1.6	1.15	1.833	0.8667
Std. Deviation	0.05636	0.9834	0.2137	0.1633	0.1472	0.3162	0.501	0.4933	0.4041
Std. Error	0.02301	0.4015	0.08724	0.06667	0.06009	0.1291	0.2045	0.2848	0.2333
GROUP II	**HEART (gms)**	**LIVER (gms)**	**KIDNEYS (gms)**	**SPLEEN (gms)**	**BRAIN (gms)**	**LUNG (gms)**	**STOMACH (gms)**	**TESTES (gms)**	**UTERUS & OVARY (gms)**
Mean	0.5883	5.27	1.45	0.7167	1.65	1.533	1.067	2.567	0.7667
Std. Deviation	0.09347	0.9016	0.2881	0.1835	0.1871	0.3011	0.459	0.8622	0.5508
Std. Error	0.03816	0.3681	0.1176	0.07491	0.07638	0.1229	0.1874	0.4978	0.318
GROUP III	**HEART (gms)**	**LIVER (gms)**	**KIDNEYS (gms)**	**SPLEEN (gms)**	**BRAIN (gms)**	**LUNG (gms)**	**STOMACH (gms)**	**TESTES (gms)**	**UTERUS & OVARY (gms)**
Mean	0.615	5.745	1.65	0.7	1.45	1.767	1.033	2.867	0.5
Std. Deviation	0.1377	0.7471	0.1871	0.2098	0.1871	0.1862	0.3011	0.7234	0.1
Std. Error	0.0562	0.305	0.07638	0.08563	0.07638	0.07601	0.1229	0.4177	0.05774

Values are mean ± S.D (n = 6 per group of which 3 males and 3 females) for Heart, Liver, Kidney, Brain, Spleen, Lung, Stomach. Values are mean ± S.D (n = 3 per group per sex) for testes , ovary and uterus for Control and treatment groups were compared statistically using one way ANOVA followed by Dunnett's test.

HISTOPATHOLOGY OF BRAIN (FEMALE RAT) IN SUB-ACUTE TOXICITY STUDY

High Power Magnification 40X



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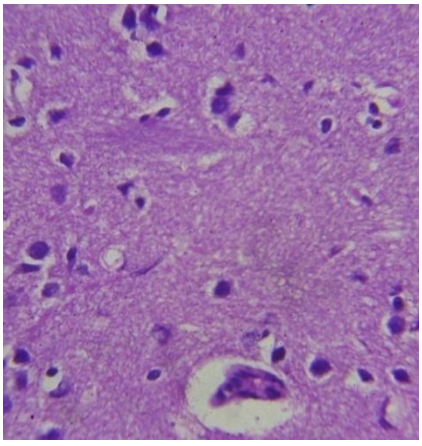

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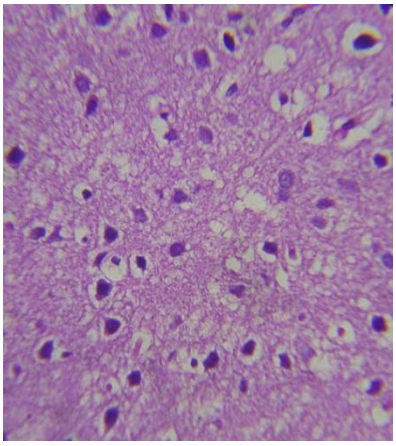

GROUP III

Histopathology of Heart (Female Rat) in Sub-acute toxicity Study

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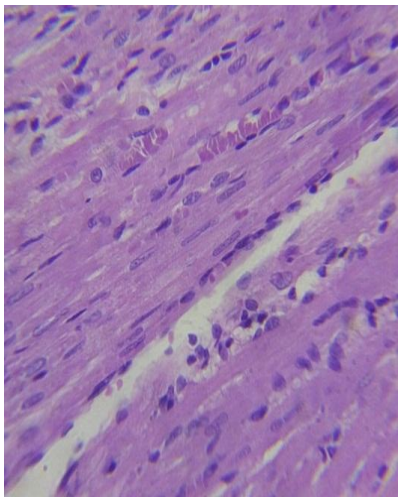

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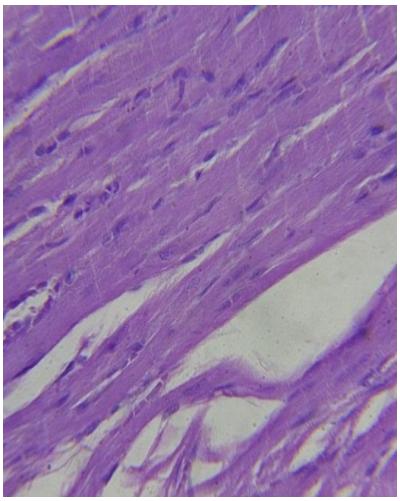

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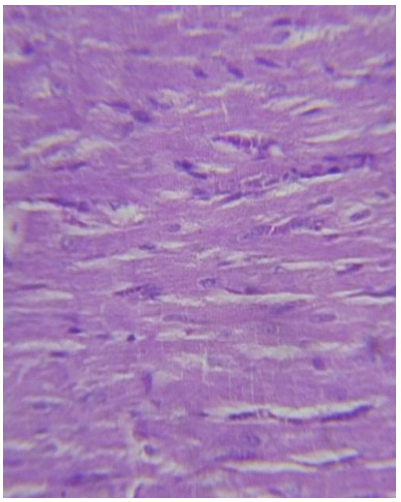

GROUP III

Histopathology of Kidney (Female Rat) in Sub-acute toxicity Study

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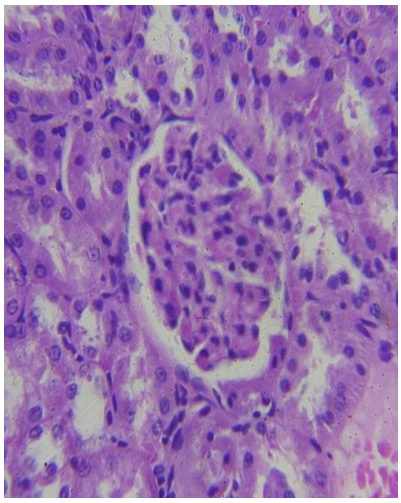

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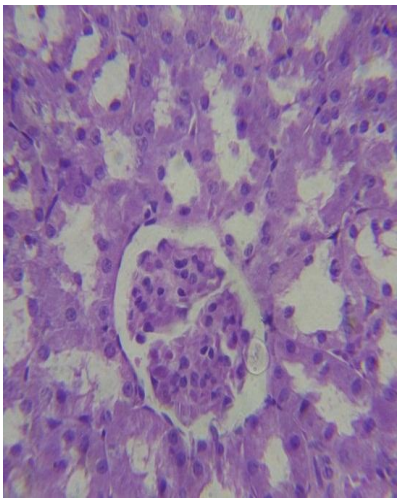

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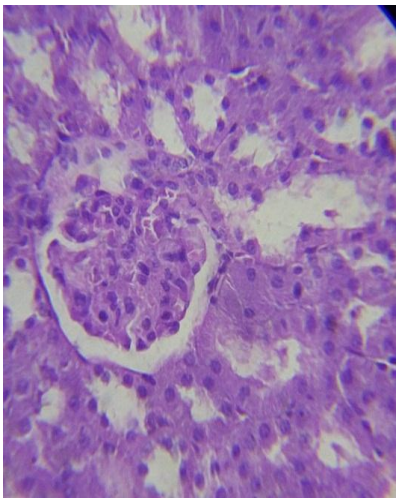

GROUP III

Histopathology of Liver (Female Rat) in Sub-acute toxicity Study

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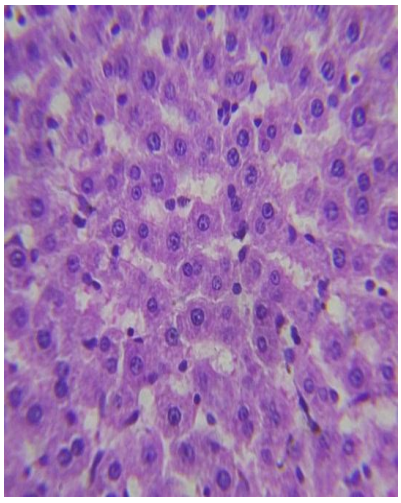

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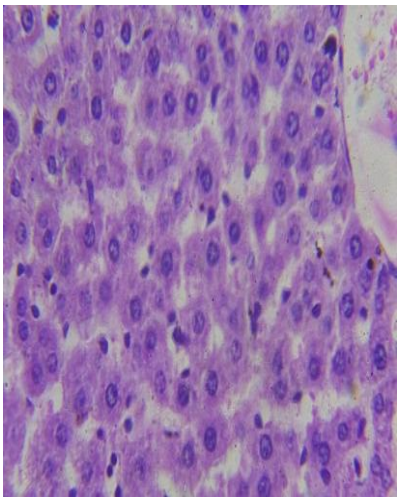

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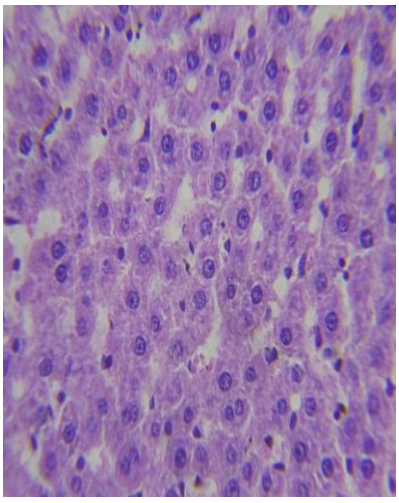

GROUP III

Histopathology of Lung (Female Rat) in Sub-acute toxicity Study

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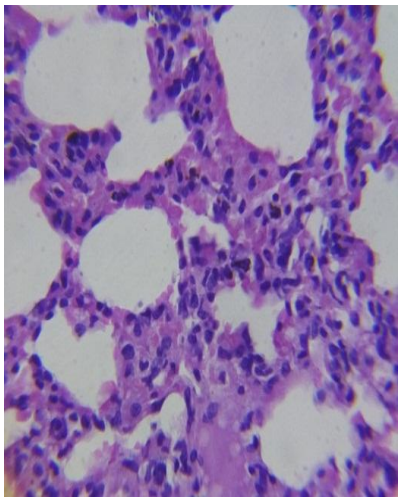

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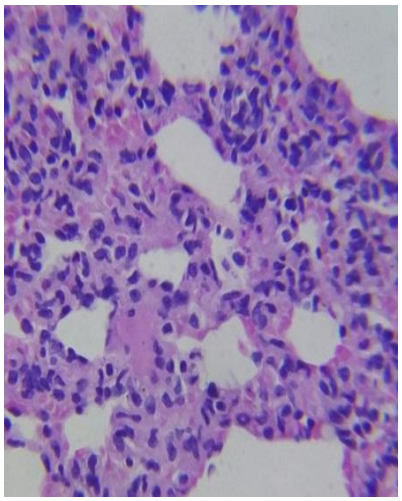

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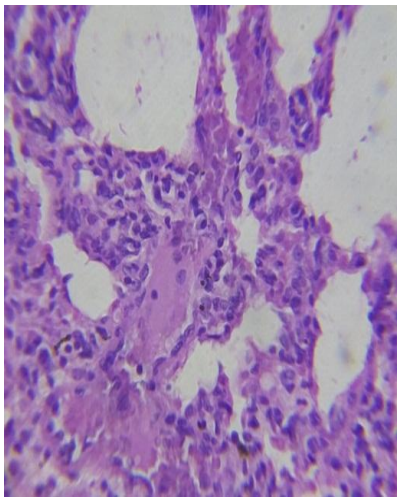

GROUP III

Histopathology of Brain (Male Rat) in Sub-acute toxicity Study

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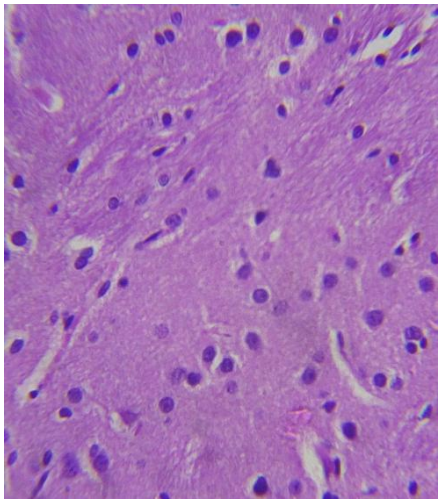

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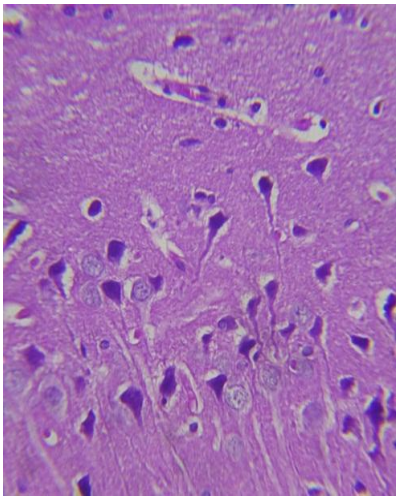

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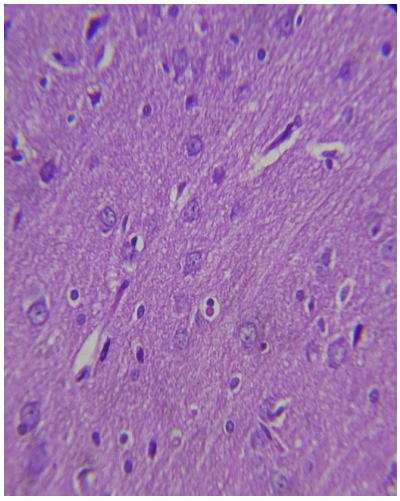

GROUP III

Histopathology of Heart (Male Rat) in Sub-acute toxicity Study

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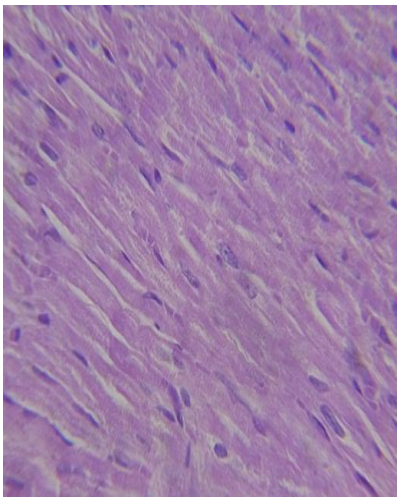

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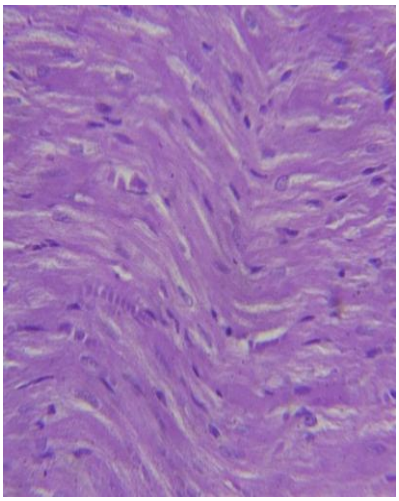

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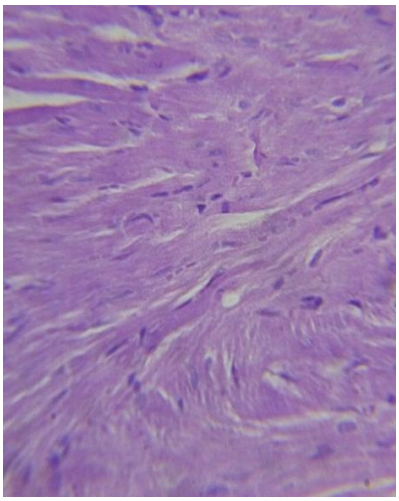

GROUP III

Histopathology of Kidney (Male Rat) in Sub-acute toxicity Study

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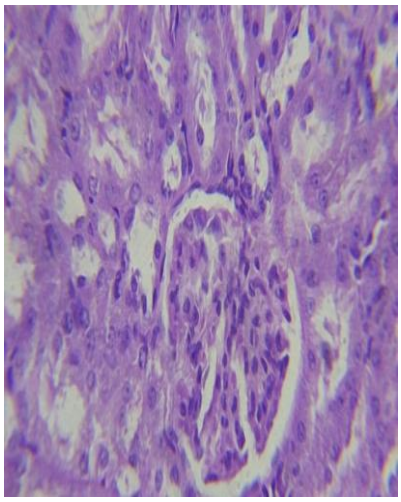

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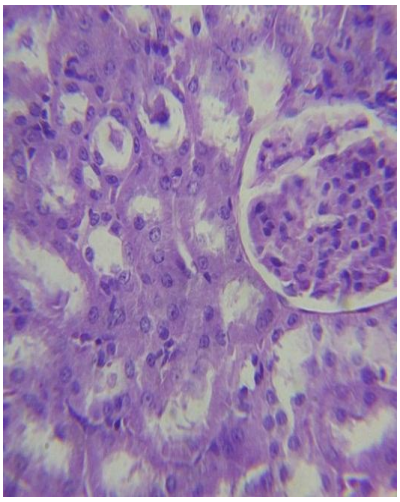

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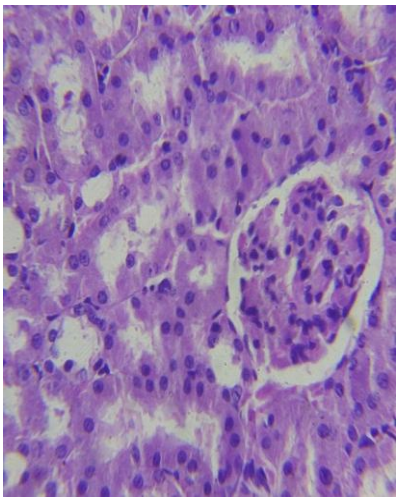

GROUP III

Histopathology of Liver (Male Rat) in Sub-acute toxicity Study

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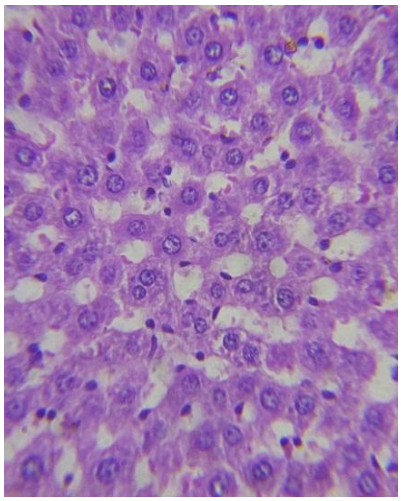

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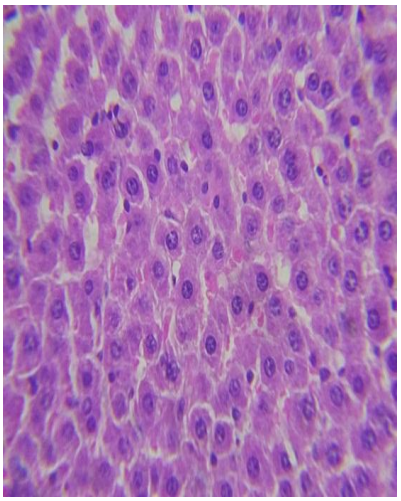

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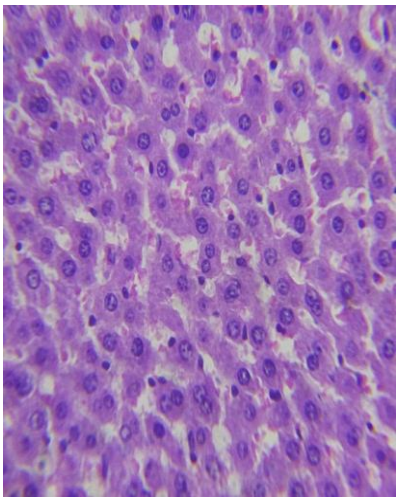

GROUP III

HISTOPATHOLOGY OF LUNG (MALE RAT) IN SUB-ACUTE TOXICITY STUDY

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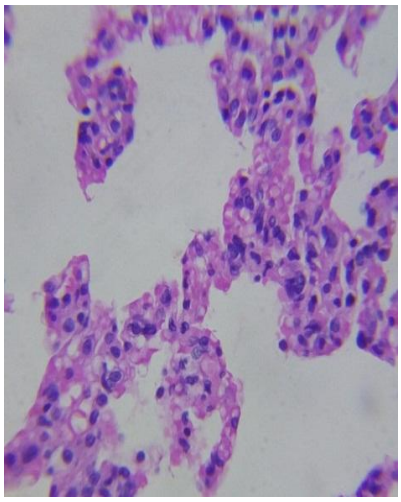

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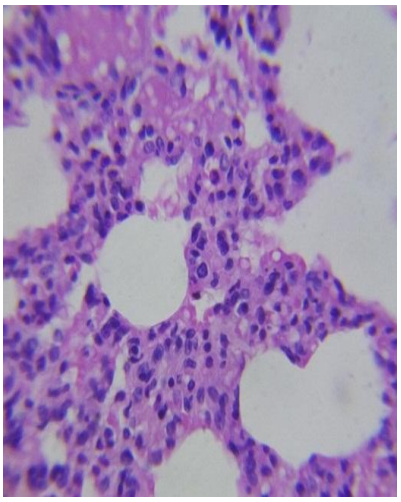

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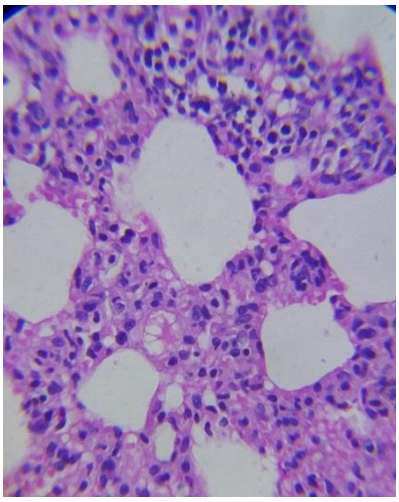

GROUP III

HSTOPATHOLOGY REPORT

BRAIN

Regular marginal alignment on the neurons with promising histology .Neurons is very intact and there were no signs of edema or degeneration. No signs of ischemia or lesion were observed in sample belongs to group I,II and III.

HEART

Appearance of cardiomyocyte was normal with dark nuclear region. The nuclei of muscle fibers appear regular arrangement. No evidence of necrotic myocardium were observed in samples belongs to group I, II and III

LUNG

Perivascular region appears normal, Alveolar septa and wall appeared widen and normal. No signs of airway secretion and bronchial secretion. Bronchial blood vessels and connective tissue appears normal with no sings of pulmonary edema were observed in both control and treated rats.

STOMACH

Microscopic analysis of stomach sample reveals normal anatomy of muscular stomach with epithelial layer keratinized stratified squamous epithelium, Lamina propria and Sub-mucosa were observed in sample belongs to group I, II and III.

LIVER

Liver parenchyma appears normal with no evidence of necrosis. Cytoplasm appears normal with widen portal tract. Hepatocellular architecture was normal with no signs of necrosis were observed in in sample belongs to group I, II and III.

SPLEEN

Erythropoietic cells (EP) are scattered throughout the red pulp of both the samples. No abnormalities found in lymph nodes in sample belongs to group I, II and III.

KIDNEY

Arrangement of glomerular loop was normal with regular interstitium. Lumen of vessels and bowman's space appears normal. Appearance of Podocytes and parietal epithelium in the glomeruli appears normal in sample belongs to group I,II and III.

TESTES

Normal sertoli cell aligned properly on the basement membrane with oval dome shaped nucleus shows the normal morphology of the seminiferous tubule were observed in sample belongs to group I,II and III.

UTERUS

Appearance of endometrium, myometrium and uterine glands was normal. Arrangement of stratum basale, functionale and surface epithelium seems normal in samples belongs to group I,II and III.

OVARY

Histopathological analysis of ovary showing normal corpus luteum (CL) and Primordial follicles with few mature ovarian follicles with no signs of abnormality. Appearance of antral follicle, primary oocyte and secondary follicles are normal in sample belong to group I,II and III.

IV. PHARMACOLOGICAL ACTIVITY

Final Docking result Analysis

Cyclooxygenase Receptor	**1**

Rank	Amino Acid interaction	Compound	Amino Acid Sequence														
	10	**Ibuprofen**	205 PHE	209 PHE	348 TYR	352 LEU	381 PHE	385 TYR	387 TRP	518 PHE	530 SER	534 LEU					
3	**6**	**Asparagine**	205 PHE	209 PHE	228 VAL	344 VAL	375 ASN	377 ILE	381 PHE	385 TYR	530 SER	534 LEU					
2	**8**	**Glabridin**	205 PHE	209 PHE	228 VAL	344 VAL	348 TYR	349 VAL	352 LEU	381 PHE	385 TYR	527 ALA	530 SER	534 LEU			
1	**9**	**Liquirtin**	205 PHE	209 PHE	344 VAL	348 TYR	349 VAL	352 LEU	378 ASN	381 PHE	385 TYR	518 PHE	523 ILE	527 ALA	530 SER	531 LEU	534 LEU

Out of three compound's Liquirtin has 9 interactions (90%) similar to that of the standard Ibuprofen hence it has promising COX 1 inhibition activity similarly other compound Glabridin has 80% percentage and compound asparagine has 60 % similar interaction to that of the standard hence all three compounds has promising COX 1 inhibition activity.

Cyclooxygenase 2 Receptor

Rank	Amino Acid interaction	Compound	Amino Acid Sequence				
	5	Celecoxib	54 GLN	55 TYR	56 LYS	57 CYS	67 GLU
1	3	Asparagine	53 ASP	54 GLN	55 TYR	67GLU	
3	1	Glabridin	37 CYS	38 SER	40 PRO	56 TYR	68 ASN
2	2	Liquirtin	55 TYR	67 GLU	68 ASN		

Out of three compound's Asparagine has 3 interactions (60%) similar to that of the standard Celecoxib hence it has promising COX 2 inhibition activity similarly other compound Liquirtin has 40% percentage and compound glabridin has 20 % similar interaction to that of the standard hence all three compounds has promising COX 2 inhibition activity.

TNF Alpha Receptor

Rank	Amino Acid interaction	Compound	Amino Acid Sequence					
	5	Diclofenac	57 LEU	59 TYR	61 GLN	119 TYR	151 TYR	
1	4	Asparagine	59 TYR	60 SER	61 GLN	119 TYR	120 LEU	151 TYR
1	4	Glabridin	59 TYR	61 GLN	119 TYR	120 LEU	151 TYR	
1	4	Liquirtin	59 TYR	61 GLN	119 TYR	120 LEU	151 TYR	

Out of three compound's Asparagine, glabridin and liquirtinhas 4 interactions (90%) similar to that of the standard Diclofenac hence all three compounds has promising TNF alpha inhibition activity.

IL 6 Receptor

Rank	Amino Acid interaction	Compound	Amino Acid Sequence																
	4	Diclofenac	66 LYS	168 ARG	169 SER	172 GLU													
2	1	Asparagine	63 ASN	64 LEU	66 LYS	86 LYS	93 GLU												
1	2	Glabirdin	36 ILE	40 ARG	54 LYS	167 LEU	168 ARG	171 LYS	172 GLU										
2	1	Liquirtin	32 ILE	36 ILE	39 LEU	91 LEU	94 PHE	95 GLU	97 TYR	98 LEU	101 LEU	115 VAL	119 THR	122 LEU	123 ILE	166 ILE	167 LEU	170 PHE	174 LEU

Out of three compound's glabirdinhas 2 interactions (50%) similar to that of the standard Diclofenac hence it has promising IL6 inhibition activity similarly other compound Liquirtin and asparagine has 25% percentage similar interaction to that of the standard hence all three compounds has promising IL6 inhibition activity

Histamine 1 Receptor

Rank	Amino Acid interaction	Compound	Amino Acid Sequence															
	15	Citrazine	84 ASN	103 TRP	107 ASP	108 TYR	111 SER	158 TRP	179 LYS	194 THR	424 PHE	428 TRP	431 TYR	432 PHE	435 PHE	454 ILE	458 TYR	
2	8	Asparagine	107 ASP	108 TYR	111 SER	179 LYS	428 TRP	431 TYR	435 PHE	458 TYR								
2	8	Glabirdin	107 ASP	108 TYR	111 SER	112 THR	178 ASP	179 LYS	198 ASN	428 TRP	431 TYR	432 PHE	436 PHE	450 HIS	454 ILE			
1	14	Liquirtin	84 ASN	103 TRP	107 ASP	108 TYR	111 SER	112 THR	158 TRP	178 ASP	179 LYS	424 PHE	428 TRP	431 TYR	432 PHE	435 PHE	454 ILE	458 TYR

Out of three compound'sLiquirtine has 14 interactions (90%) similar to that of the standard Citrazinehence it has excellent Histamine 1 blocking activity. similarly other compounds Asparagine and glabirdinhas 8 interactions (53%) similar to that of the standard Citrazinehence all three compounds has promising Histamine 1 blocking activity

Prostaglandin Synthase

Rank	Amino Acid interaction	Compound	Amino Acid Sequence						
	5	Salicylic acid	35 PRO	38 TYR	40 PRO	54 ARG	55 TYR		
0	0	Asparagine	468 LYS	474 PRO	499 ASP				
2	3	Glabridin	38 TYR	40 PRO	42 GLN	55 TYR	68 ASN	70 THR	468 LYS
1	5	Liquirtin	35 PRO	38 TYR	40 PRO	42 GLN	54 ARG	55 TYR	68 ASN

Out of three compound's Liquirtinhas 5 interactions (100%) similar to that of the standard salicylic acid hence it has excellent Prostaglandin Synthaseinhibition activity similarly other compound glabirdin has 60% percentage similar interaction to that of the standard hence both compounds has Prostaglandin Synthase inhibition activity. Compound Asparagine has no Prostaglandin Synthase inhibition activity.

Conclusion

Based on the results of the computational analysis it was concluded that the compound's such as Asparagine, Liquiritin , Glabridin present in the formulation AthimathuraChooranam possess significant inhibition of COX 1& 2 ,Prostaglandin synthases, Histamine 1,TNF alpha and IL 6 inhibition activity there it was concluded that this formulation may have promising against bronchial asthma.

ICP-MS- Heavy Metal Analysis Report

ICP-MS

Inductively Coupled Plasma Mass Spectrometry (ICP-MS): ICP-MS is a type of mass spectrometry that is highly sensitive and capable of the determination of a range of metals and several non-metals at concentration below one part in 1012 (parts per trillion). Samples are decomposed to neutral elements in high temperature argon plasma and analyzed based on their mass to charge ratios. It is an automated, simple and unique quantitative and qualitative analysis. It measures elemental isotopes ratio.

Procedure

Digestion of sample is carried out by transforming 2.5 ml of the sample into a closed beaker and 5 ml of concentrated HNO3 was added and digested to near dryness. 16 M nitric acid was further added each time to the sample and digested until the clear solution was obtained. 5ml of 12 M Hydrochloric acid was added to ensure complete digestion .The digested solution was cooled to room temperature and made to the final volume of 100 ml with deionized water. Sample solutions were then filtered through membrane (0.45micron) filter. Finally, the digested samples were used for metal analysis using inductively coupled plasma Mass Spectrometry (Perkin Elmer DRC-e Model) .Each sample was digested in triplicate. A blank solution was also prepared in a similar manner.

Machine Model: **Agilent 7700 ICPMS**

Sample ID: AC

Element	**Concentration (mg/L)**	**Upper Limit (mg/L)**
Cadmium (Cd)	**0.041**	0.299

Reference

1. Smille TJ and Khan IA, A Comprehensive approach to Identifying and authenticating Botanical Products, *Clinical Pharmacology and therapeutics*. 2010; 87(2): 175-186.
2. Limmatvapirat CJ, Charoenteeraboon, Phaechamud T. Simultaneous analysis of eleven heavy metals in extracts of Sonneratiacaseolaris (L.) Engl. By ICP-MS. *Res. J. Pharm., Biol. Chem.Sci*.2012; 3:744-50.

BIO STATISTIC REPORT

TREATMENT FOR SOOLI KANAM(CHILHOOD BRONCHIAL ASTHMA):

The most popular non parametric statistical tool, namely, McNemar Test analysis has been employed to analyses the effectiveness with the help of a hypothesis.

S. No	Clinical Features	Before Treatment	After Treatment
		n%	n%
1.	Wheezing	40(100)	3(7.5)**
2.	Cough	32(80)	2(5)**
3.	Running nose	27(67.5)	2(5)**
4.	Decreased physical activity	23(57.5)	1(2.5)**
5.	Poor diet intake	25(62.5)	5(12.5)*
6.	Chest tightness	20(50)	1(2.5)**
7.	Sneezing	10(25)	0(0)**
8.	Fever	5(12.5)	0(0)*
9.	Pallor	22(55)	2(5)**
10.	Shortness of breath	3(7.5)	1(2.5)*

McNemat test, C.I: 95%, *P<0.05; **P<0.01

Software: spss17 version

Number of cases: 40

Inference:

Since the p value is significant in all clinical features.So there is significant reducing of clinical features among the patients for the treatment of**SooliKanam(Chilhood Bronchial asthma)**.Hence it is concluded that the treatment was **effective**and **significant.**

BIBLIOGRAPHY

- குழந்தைமருத்துவம் (பாலவாகடம்) - க.ச.முருகேசமுதலியார்,மரு.பொன்குருசிரோன்மணி.
- கும்பமுனிபாலவாகடம்- A.T.S.V.Siddha Medical College
- பரராசசேகரம்,பாலரோகநிதானம் - ஐ. பொன்னையாபிள்ளை
- சரபேந்திரவைத்தியமுறைகள் -கர்ப்பிணிபாலரோகசிகிச்சை வாசுதேவசாஸ்த்திரி
- நவரத்தினசிந்தாமணி 800 -திருவள்ளுவநாயனார்
- ஆவியளிக்கும் அமுதமுறைசுருக்கம் - S.P. இராமசந்திரன்
- ஆத்மராட்சாமிர்தம் எனும் வைத்தியசாரசங்கிரகம் - கந்தசாமிபிள்ளை
- ஜீவரட்சாமிர்தம் - ஆறுமுகம் பிள்ளை
- பிள்ளைப் பிணிமருத்துவம் - Dr. அ.சுந்தர்ராஜன்
- அபிதானசிந்தாமணி- சிங்காரவேலுமுதலியார்
- சித்தமருத்துவாங்கசுருக்கம் - Dr.க.சு. உத்தமராயன்
- சித்தமருத்துவநோய்நாடல் நோய் முதனாடல் திரட்டு-Dr. ம.சண்முகவேலு
- தமிழ் - ஆங்கிலம் அகராதி-T.V. சாம்பசிவம்பிள்ளை
- குணபாடம் -மூலிகைவகுப்பு- க.ச .முருகேசமுதலியார்
- மருத்துவதாவரவியல்- எஸ். சோமசுந்தரம்
- தேரன் சேகரப்பா
- பிள்ளைப்பிணிவாகடம்
- தன்வந்திரிவைத்தியம்
- அயோத்திதாசர் பாலவாகடம்
- சித்த மருத்துவமணிகள்
- தேரையர் வெண்பா
- பதார்த்தகுணசிந்தாமணி
- திருமூலர் திருமந்திரம்
- அகத்தியர் வல்லாதிநாடி நூல்
- சதகநாடி
- திருக்குறள் -திருவள்ளுவர்
- யூகிவைத்தியசிந்தாமணி
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FORMS

GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

POST- GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

AN OPEN CLINICAL STUDY ON SOOLI KANAM (CHILDHOOD BRONCHIAL ASTHMA) IN CHILDRAN WITH THE EVALUATION OF SIDDHA TRAIL DRUG 'ATHIMADHURA CHOORANAM''

FORM l - SCREENING AND SELECTION PROFORMA

1.OP NO: .....

2. NAME: …….

3. AGE: …… 4.GENDER: …….....

5. F.OCCUPATION: …….. 6.F.INCOME: ……

7. ADDRESS: ……

……

……

8. CONTACT NO: ……

INCLUSION CRITERIA:

- Age 2 to7 years Yes/No
- Cough without expectoration Yes/No
- Dyspnoea Yes/No
- Running nose Yes/No
- Chest tightness Yes/No
- Wheezing Yes/No
- Decreased physical activity Yes/No
- Poor diet intake Yes/No

- Patients who are willing to sign the informed consent stating that she will conscientiously stick to the treatment during 20days but can opt out of the trial of her own conscious discretion. Yes / No

EXCLUSION CRITERIA

(Clinical history)

- Childhood TB
- Hypersensitivity Pneumonitis
- Lung abscess
- Cystic fibrosis
- Bronchiolitis

ADMITTED TO TRIAL:

YES NO

If yes, OPD/IPD

Date:

Station:

Signature of the Guide **Signature of the Investigator**

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FORM lI -HISTORY TAKING PROFORMA

1. SERIAL NO OF THE CASE: ……. 2.OP/IP NO:

.....

3. NAME: …… 4. AGE: …….. 5. GENDER:

……..

5. F. OCCUPATION: …… 6.F. INCOME:

7. COMPLAINTS& DURATION:

8. PERSONAL HISTORY:

9. HISTORY OF PREVIOUS ILLNESS

10. BIRTH HISTORY

11.DIETARY HABIT: 1. Vegetarian

2. Non-vegetarian

12. FAMILY HISTORY:

Whether this problem runs in family?

1. Yes 2.No

If yes, mention the relationship of affected person(s) ----------

History of previous investigations if any ----------

Date:

Station

Signature of the Guide **Signature of the Investigator**

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FORM III ASSESSMENT PROFORMA

1. SERIAL NO: ……

2.OP / IP NO: .....

3. NAME: …… 4.AGE: …… 5.GENDER: .....

GENERAL EXAMINATION:

Height (cms)	**: …….**
Weight (kg)	**: …….**
Temperature(°F)	**: …….**
Pulse rate(/min)	**: …….**
Heart rate(/min)	**: …….**
Respiratory rate(/min)	**: …….**
Blood pressure(mm/Hg)	**: …….**

	Present	**Absent**
Pallor		
Jaundice		
Cyanosis		
Lymphadenopathy		
Pedal edema		
Clubbing		

Jugular vein pulsation

SYSTEMIC EXAMINATION

Cardiovascular System : …….

Respiratory system : …….

Gastro-intestinal system : …….

CentralNervous System : …….

Urogenital system : …….

Endocrine System : …….

SIDDHA SYSTEM OF EXAMINATIONS:

1. THEGI: [BODY CONSTITUTION]

1. Vathaudal
2. Pithaudal
3. Kabaudal
4. Thonthaudal

2. NILAM: [LAND WHERE PATIENT LIVED MOST]

1. Kurinji (Hilly terrain)
2. Mullai (Forest range)
3. Marutham (Plains)
4. Neithal (Coastal belt)
5. Paalai (Arid regions)

3. KAALAM:

1. Kaarkaalam 4.Pinpani kaalam

2. Koothirkaalam 5. Ilavenilkaalam

3. Munpanikaalam 6.Muthuvenil kaalam

4. GUNAM:

1.Sathuvam 2.Raasatham 3.Thaamatham

5. IMPORIGAL (SENSORY ORGANS):

Normal/Affected

Mei - ----------

Vaai ----------

Kann ----------

Mukku ----------

Sevi ----------

6. KANMENDHIRIYAM (MOTOR ORGANS):

Kai ----------

Kal ----------

Vaai ----------

Eruvai ----------

Karuvaai ----------

7. KOSANGAL (SHEATH):

Annamayakosam ----------

Pranamayakosam ----------

Manomayakosam ----------

Vignanamayakosam ----------

Anandamayakosam ----------

8. UYIR THAATHUKKAL: [THREE HUMORS] (VALI, AZHAL,IYAM)

A) VALI

Pranan –----------

Abanan ----------

Samanan ----------

Uthanan ----------

Vyanan ----------

Naagan ----------

Koorman ----------

Kirukaran ----------

Devathathan ----------

Dhananjayan ----------

B) AZHAL

Analakam ----------

Ranjakam ----------

Sathakam ----------

Prasakam ----------

Alosakam ----------

C) IYAM

Avalambagam ----------

Kilethagam ----------

Pothagam ----------

Tharpagam ----------

Santhigam ----------

9. SEVEN UDAL THATHUKKAL: (SEVEN SOMATIC COMPONENTS)

Saaram ----------

Senneer ----------

Oon ----------

Koluppu ----------

Enbu ----------

Moolai ----------

Sronitham ----------

10. ENVAGAI THERVU:

I. NAADI: [PULSE PERCEPTION]

II. SPARISAM: [PALPATION]

III. NAA: [TONGUE]

IV.NIRAM: [COMPLEXION]

1. Vadham
2. Pitham
3. Kabam

V.MOZHI: [VOICE]

1. High Pitched
2. Low Pitched
3. Medium Pitched

VI.VIZHI: [EYES]

VII. MALAM: [BOWEL HABITS / STOOLS]

Niram

Irugal

Ilagal

Others

VIII. MOOTHIRAM [URINE EXAMINATION]

NEERKKURI:

Niram

Manam

Edai

Nurai

Enjal

NEIKKURI

Date:

Station:

Signature of the Guide **Signature of the Investigator**

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CHENNAI – 600 106

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AN OPEN CLINICAL STUDY ON SOOLI KANAM (CHILDHOOD BRONCHIAL ASTHMA) IN CHILDRAN WITH THE EVALUATION OF SIDDHA TRAIL DRUG 'ATHIMADHURA CHOORANAM''

.FORM IV : LABORATORY INVESTIGATIONS PROFORMA

1. SERIAL NO OF THE CASE: ……

2.OP / IP NO: .....

3. NAME: …… 4.AGE: …… 5.GENDER: .....

A) BLOOD INVESTIGATIONS:

BLOOD INVESTIGATIONS		BEFORE TREATMENT	AFTER TREATMENT
Hb (gm/dL)			
ESR (mm)	½ hr.		
	1 hr.		
T.WBC (Cells / Cu.mm)			
Differential Count (%)	Polymorphs		
	Lymphocytes		
	Monocytes		
	Eosinophils		
	Basophils		

B) URINE INVESTIGATIONS:

URINE INVESTIGATIONS	BEFORE TREATMENT	AFTER TREATMENT
Albumin		
Sugar		
Deposits		

Date:

Station:

Signature of the Guide **Signature of the Investigator**

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AN OPEN CLINICAL STUDY ON SOOLI KANAM (CHILDHOOD BRONCHIAL ASTHMA) IN CHILDRAN WITH THE EVALUATION OF SIDDHA TRAIL DRUG 'ATHIMADHURA CHOORANAM'

FORM V: INFORMED CONSENT FORM

*"**I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction.***

***I consent voluntarily to participate my chid in this study and understand that I have the right to withdraw from the study at any time without in any way it affecting my chid further medical care**".*

"I have received a copy of the information sheet/consent form".

Date:

Signature of the participant:

In case of illiterate participant

*"**I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely**."*

Date:

Signature of a witness Left thumb Impression of the Participant

(Selected by the participant bearing no connection with the survey team)

Date:

Station:

Signature of participant:

Signature of the Guide: **Signature of the Investigator:**

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CHENNAI-106

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AN OPEN CLINICAL STUDY ON SOOLI KANAM (CHILDHOOD BRONCHIAL ASTHMA) IN CHILDRAN WITH THE EVALUATION OF SIDDHA TRAIL DRUG 'ATHIMADHURA CHOORANAM'

FORM VI - WITHDRAWAL FORM

SI NO:

OP / IP NO:

NAME:

AGE / GENDER :

DATE OF TRIAL COMMENCEMENT:

DATE OF WITHDRAWAL FROM TRIAL:

REASONS FOR WITHDRAWAL:

- Intolerance to the drug and development of adverse reactions during the trial.
- Patients turned unwilling to continue in the course of clinical trial.
- Any other acute illness.

Date:

Station:

Signature of the Guide **Signature of the Investigator**

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CHENNAI – 600 106

POST- GRADUATE DEPARTMENT OF KUZHANTHAI MARUTHUVAM

AN OPEN CLINICAL STUDY ON SOOLI KANAM (CHILDHOOD BRONCHIAL ASTHMA) IN CHILDRAN WITH THE EVALUATION OF SIDDHA TRAIL DRUG 'ATHIMADHURA CHOORANAM''

FORM VII – PATIENT INFORMATION SHEET

Name of Co-Investigator;P.Chakravarthi. Name **of the college:**

Govt.SiddhaMedical College

Arumbakkam

Chennai-106.

INFORMATION SHEET FOR PATIENTS PARTICIPATING IN THE OPEN CLINICAL TRIAL.

I,**P**.Chakravarthi, studying M.D (Siddha) at Govt.Siddha Medical College, Chennai, is doing a clinical trial on ''SooliKanam (Childhood Bronchial Asthma) in children . It is becoming a most common disease, occurring throughout the world. In this regard, I am in need to ask you few questions. I will maintain confidentiality of your comments and data obtained. There will be no risk of disclosing your identity and no physical, psychological or professional risk is involved by taking part in this study. Taking part in this study is voluntary. No compensation will be paid to you for taking part in this study.

You can choose not to take part. You can choose not to answer a specific question. There is no specific benefit for you if you take part in the study. However, taking part in the study may be of benefit to the community, as it may help us to understand the problem of defaulters and potential solutions.

If you agree to be a participant in this study, you will be included in the study primarily by signing the consent form and then you will be given the internalmedicine "Athimadhurachooranam" (Internal medicine) 500 mg b.d with Honey for 7 days.

The information I am collecting in this study will remain between you and the Co- investigator (myself). I will ask you few questions through a questionnaire. I will not write your name on this form. I will use a code instead.

The questionnaire will take approximately 20 minutes of your time.

If you wish to find out more about this study before taking part, you can ask me all the questions you want orcontact P.Chakravarthi, PG Scholar cum Co-investigator of this study, attached to Govt. Siddha Medical College, Chennai-106. You can also contact the Member-secretary of Ethics committee, Govt.Siddha Medical College, Chennai.

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FORM X - ADVERSE REACTION REPORTING FORM

SERIAL NO:

OP/IP NO:

NAME: **AGE:** **GENDER:**

DATE OF TRIAL COMMENCEMENT:

DATE OF OCCURRENCE OF THE ADVERSE REACTION: **TIME:**

DESCRIPTION OF ADVERSE REACTION:

MANAGEMENT:

Date:

Station:

Signature of the Guide **Signature of the Investigator**

XI.CASE SHEET PROFORMA

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CHENNAI – 600 106

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Branch -IV KUZHANTHAI MARUTHUVAM

PROFORMA OF CASE SHEET FOR KANAM

IP. No	:	Nationality	:
Name	:	Religion	:
Age	:	Date of Admission	:
Sex	:	Date of Discharge	:
Address	:	Diagnosis	:
Informant	:	Medical Officer	:

1. Complaints and duration :
2. History of present illness :
3. History of previous illness :
4. Antenatal history :
5. Birth history :
6. Neonatal history :
7. Development history :
8. Nutritional history :
9. Socio environmental history :
10. Family history :
11. Immunization history :

Clinical examination General examination

1. Consciousness :
2. Stature :
    a. Height :
    b. Weight :
    c. Head circumference :
    d. Mid arm circumference :
    e. Chest circumference :

3. Nourishment :
4. Anaemia :
5. Cyanosis :
6. Clubbing :
7. Jaundice :
8. Lymphadenopathy :
9. Abdominal distension :
10. Pedal oedema :

Vital Sign

1. Temperature :
2. Pulse rate :
3. Respiratory rate :
4. Heart rate :
5. Blood pressure :

Siddha aspect

Nilam

1. Kurinji :
2. Muilai :
3. Marutham :
4. Neithal :

5. Palai :

Parvakalam

1. Kaar :
2. Koothir :
3. Munpani :
4. Pinpani :
5. Elavenil :
6. Muthuvenil :

Poripulangal

1. Mei :
2. Vai :
3. Kan :
4. Mooku :
5. Sevi :

Kanmenthiriyam

1. Kai :
2. Kaal :
3. Vaai :
4. Eruvai :
5. Karuvai :

Uyirthathukkal

Vadham

1. Praanan :
2. Abaanan :
3. Viyaanan :
4. Uthaanan :
5. Samaanan :
6. Nagan :
7. Koorman :
8. Kirukaran :
9. Devathatthan :

10. Dhananjeyan :

Pitham

1. Anal Pitham :
2. Ranjagam :
3. Saadhagam :
4. Praasagam :
5. Aalosagam :

Kabam

1. Avalambagam :
2. Kilethagam :
3. Pothagam :
4. Tharpagam :
5. Santheegam :

Udarkattugal

1. Saaram :
2. Senneer :
3. Oonn :
4. Kozhuppu :
5. Enbu :
6. Moolai :
7. Sukkilam / Suronitham: Not applicable

Ennvagaithervugal

1. Naadi :
2. Naa :
3. Niram :
4. Mozhi :
5. Vizhi :
6. Sparisam :
7. Malam :
8. Moothiram :

Modern Aspects

Respiratory System

1. Inspection :
2. Palpation :
3. Percussion :
4. Auscultation :

Examination of other system

Cardiovascular system

Abdomen

Central nervous system

Laboratory investigations

Blood

TC :

DC :

ESR :

½hr, :

1 hr :

Hb% :

Urine

Albumin :

Sugar :

Deposit :

Stools

Ova :

Cyst :

Other Investigations

X-ray- chest PA view:

Mx test :

Investigation - Siddha aspect

Neerkuri and Neikuri :

1. Neerkuri

Niram :

Edai :

Manam :

Nurai :

Enjal :

2. Neikuri Daily progress

Date	Symptoms	Medicine

ATHIMATHURA CHOORANAM INGREDIENTS

Glycirrhiza glabra

Elettaria cardamomum

Cyperus rotundus

Costus speciosus

Michelia champaca

Cuminum cyminum

Zingiber officinale

Syzygium aromaticum

ATHIMATHURA CHOORANAM